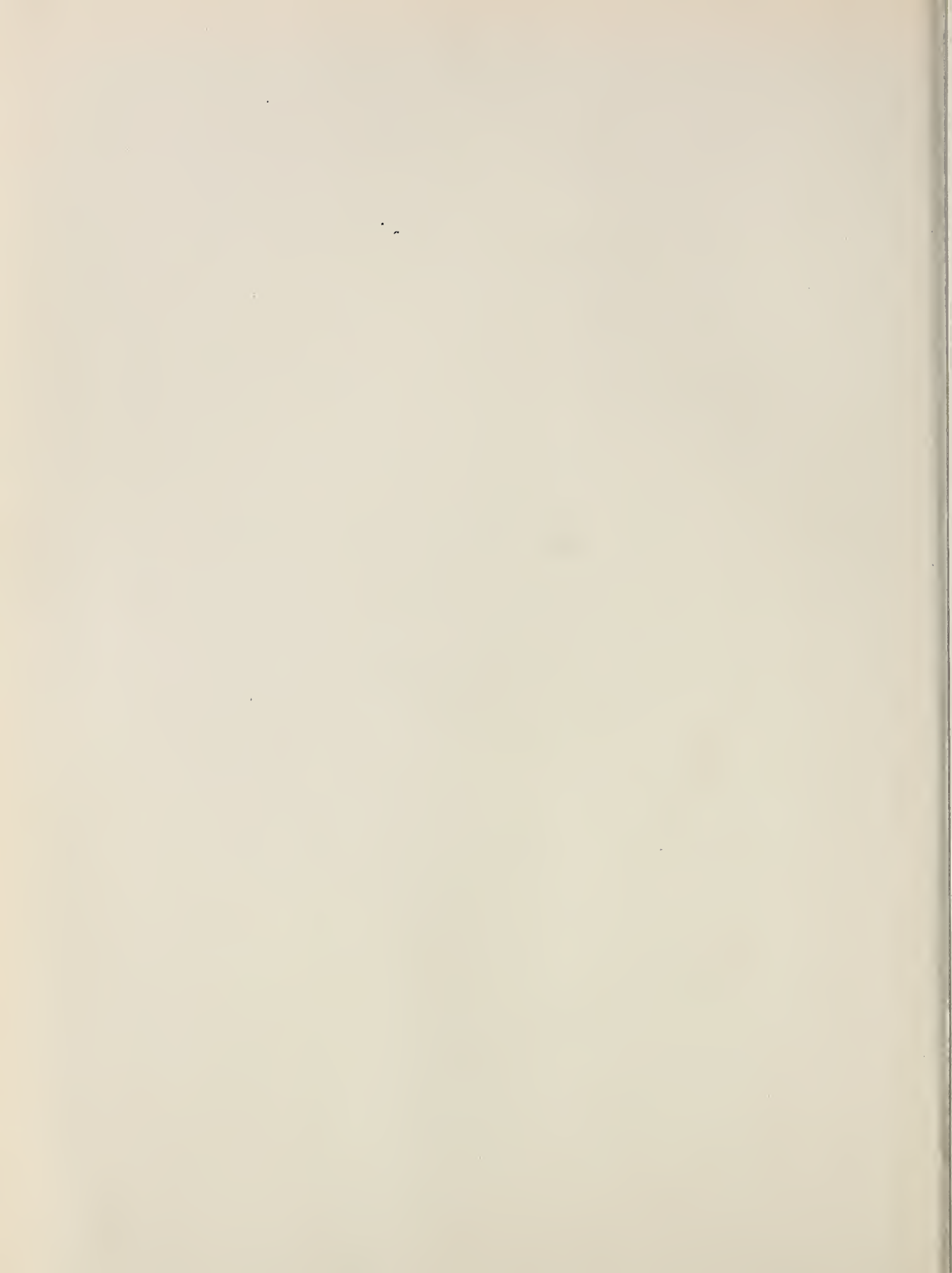


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Reference - " " " to be taken as per Form - J.

U. S. DEPARTMENT OF COMMERCE  
NATIONAL BUREAU OF STANDARDS  
CENTRAL RADIO PROPAGATION LABORATORY  
BOULDER, COLORADO



IONOSPHERIC DATA

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## SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1957, the symbols used are given in NBS Report 5033, "Summary of Changes in Ionospheric Vertical Soundings, Observing and Scaling Procedures - Effective 1 January 1957," which draws upon the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, Sept. 2, 1956. A list of these symbols is available upon request.

In the Second Report of the Special Committee on World-Wide Ionospheric Soundings of the URSI/AGI Committee, May 1957, a new descriptive letter was introduced:

- M Measurement questionable because the ordinary and extraordinary components are not distinguishable.

There was an expansion in meaning of the following:

- Z (1) (qualifying letter) Measurement deduced from the third magnetoionic component.  
(2) (descriptive letter) Third magnetoionic component present.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given above.

- a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N or R are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic; the descriptive symbol D, only when it replaces a frequency characteristic.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

B for fEs is counted on the low side when there is a numerical value of a higher layer characteristic; otherwise it is omitted from the median count.

S for fEs is counted on the low side at night; during the day it is omitted from the median count (beginning with data for November 1957).

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D.C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If the count is four or less, the data are considered insufficient and no median value is computed.

2. For the F2 layer, h'F or foEs, if the count is from five to nine, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as the count is at least five, the median is not considered doubtful. A count of at least 5 is considered sufficient for an h'Es median.

3. For all layers, if more than half of the data used to compute the medians are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

- a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.
- b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.
- c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.
- d. The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.



# PREDICTED AND OBSERVED SUNSPOT NUMBERS

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number										
	1959	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949
December		150*	150*	150	42	11	15	33	53	86	108
November		150*	150*	147	35	10	16	38	52	87	112
October		150*	150*	135	31	10	17	43	52	90	114
September		150*	150*	119	30	8	18	46	54	91	115
August		150*	150*	105	27	8	18	49	57	96	111
July		150*	150*	95	22	8	20	51	60	101	108
June	143	150*	150*	89	18	9	21	52	63	103	108
May	146	150*	150*	77	16	10	22	52	68	102	108
April	150*	150*	150*	68	13	10	24	52	74	101	109
March	150*	150*	150*	60	14	11	27	52	78	103	111
February	150*	150*	150*	53	14	12	29	51	82	103	113
January	150*	150*	150*	48	12	14	30	53	85	105	112

\*This number is believed representative of solar activity at a maximum portion of the current sunspot cycle.

The latest available information follows concerning the corresponding observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1957.

## Observed Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	73	81
1956	89	98	109	119	127	137	146	150	151	156	160	164
1957	170	172	174	181	186	188	191	194	196	198	200	199
1958	198	200	200	196	189	184						

## WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Commonwealth of Australia, Ionospheric Prediction Service of the  
Commonwealth Observatory:

Brisbane, Australia  
Canberra, Australia  
Hobart, Tasmania  
Townsville, Australia

Commonwealth of Australia, Department of the Interior:  
Macquarie I.

University of Graz:  
Graz, Austria

Electronics Directorate of the Brazilian Navy:  
Natal, Brazil

Escola Politecnica, University of Sao Paulo:  
Sao Paulo, Brazil

British Department of Scientific and Industrial Research, Radio  
Research Board:

Falkland Is.  
Ibadan, Nigeria (University College of Ibadan)  
Inverness, Scotland  
Singapore, British Malaya  
Slough, England

Defence Research Board, Canada:  
Winnipeg, Canada

Universidad de Concepcion:  
Concepcion, Chile

Danish National Committee of URSI:  
Godhavn, Greenland

The Finnish Academy of Sciences and Letters:  
Sodankyla, Finland

Central Institute of Meteorology, Budapest, Hungary:  
Budapest, Hungary



Indian Council of Scientific and Industrial Research, Radio  
Research Committee, New Delhi, India:

Ahmedabad (Physical Research Laboratory)

Bombay (All India Radio)

Calcutta (Institute of Radio Physics and Electronics)

Delhi (All India Radio)

Kodaikanal (India Meteorological Department)

Madras (All India Radio)

Tiruchy (All India Radio)

National Institute of Geophysics, City University, Rome, Italy:  
Rome, Italy

Ministry of Postal Services, Radio Research Laboratories,  
Tokyo, Japan:

Akita, Japan

Tokyo (Kokubunji), Japan

Wakkanai, Japan

Yamagawa, Japan

Christchurch Geophysical Observatory, New Zealand Department of  
Scientific and Industrial Research:  
Campbell I.

Norwegian Defence Research Establishment, Kjeller per Lillestrom,  
Norway:  
Tromso, Norway

Manila Observatory:  
Baguio, P. I.

Institute of Terrestrial Magnetism, Ionosphere and Radio Propa-  
gation, Moscow, U.S.S.R.:  
Moscow

Research Institute of National Defence, Stockholm, Sweden:  
Kiruna, Sweden

Post, Telephone and Telegraph Administration, Berne, Switzer-  
land:  
Schwarzenburg, Switzerland

United States Army Signal Corps:  
Adak, Alaska  
Fletchers Ice I.  
Ft. Monmouth, New Jersey  
Thule, Greenland  
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):

Fairbanks (College), Alaska (Geophysical Institute of the University of Alaska)

Maui, Hawaii

Panama Canal Zone

Pole Station, Antarctica

Puerto Rico, W. I.

San Francisco, California (Stanford University)

Washington, D. C.

## ERRATUM

The values of (M3000)F2 for Inverness, Scotland, July 1957 through January 1958, inclusive, are approximately 10% too high.

# TABLES OF IONOSPHERIC DATA

October 1958 - December 1955

Table 1

Fairbanks, Alaska (64.9°N, 147.8°W)

October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(4.25)						3.0	(2.45)
01	(5.0)						3.1	(2.38)
02	(4.55)						2.8	(2.45)
03	(4.3)						2.9	(2.40)
04	(4.9)						3.1	(2.45)
05	(5.0)						2.0	(2.45)
06	(5.6)							(2.55)
07	(6.3)				147	2.00		(2.80)
08	7.8				119	2.30		2.95
09	(9.1)				115	2.60		(2.90)
10	9.75				117	2.80		2.85
11	10.85				115	2.92		2.80
12	11.05				117	2.90		2.70
13	11.5				116	2.80		2.70
14	11.9				119	2.70		2.85
15	11.75				123	2.30		2.85
16	11.9				175	E		2.85
17	11.1							2.80
18	9.3							2.75
19	(7.3)							(2.75)
20	(6.0)						1.9	(2.70)
21	(5.2)						2.4	(2.70)
22	(5.0)						2.0	(2.60)
23	(4.45)						3.3	(2.70)

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 2

Ft. Monmouth, New Jersey (40.4°N, 74.1°W)

October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.2	290					(2.62)
01		6.9	300					(2.60)
02		6.8	295					(2.55)
03		6.5	290					(2.58)
04		6.2	275					(2.60)
05		6.05	275					(2.65)
06		6.9	265					(2.80)
07		10.0	235					(3.05)
08		12.0	235		118	3.00		(3.02)
09		12.8	230		115	>3.20		(2.95)
10		13.2	225		113	>3.50		(2.90)
11		13.25	225		115	(3.60)		(2.75)
12		13.2	230		113	(3.60)		(2.70)
13		13.2	230		117	>3.50		(2.70)
14		12.8	235		115	3.50		(2.70)
15		12.8	240		119	(3.10)		(2.70)
16		12.7	245		123	>2.50		(2.70)
17		12.0	240					(2.75)
18		11.0	245					(2.75)
19		10.0	250					(2.70)
20		9.2	260					(2.70)
21		8.7	275					(2.70)
22		8.0	280					(2.65)
23		7.75	280					(2.70)

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

Washington, O. C. (38.7°N, 77.1°W)

October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.5	275					2.65
01		6.9	280					2.60
02		6.7	200					2.60
03		6.6	280					2.52
04		6.3	275					2.50
05		6.1	270					2.60
06		6.6	260					2.80
07	---	9.6	240	---	119	2.30		3.00
08	---	12.0	235	---	111	2.92	3.0	3.00
09	---	13.0	225	---	109	3.30		2.95
10	---	13.8	220	---	109	3.60		2.05
11	---	14.2	220	---	109	3.70		2.75
12	---	13.8	220	---	109	3.80		2.70
13	---	13.8	230	---	110	3.75		2.65
14	---	13.4	235	---	111	3.60		2.60
15	---	13.4	235	---	115	3.35		2.65
16	---	13.2	240	---	115	2.90		2.65
17	---	12.6	240	---	(121)	2.15		2.70
18	---	11.45	240	---				2.70
19	---	10.2	235	---				2.70
20	---	9.55	245	---				2.70
21	---	8.5	260	---				2.70
22	---	8.2	265	---				2.60
23	---	7.85	270	---				2.65

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 4

Maui, Hawaii (20.8°N, 156.5°W)

October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.3	230					(3.05)
01		>9.0	225					3.05
02		0.0	230					2.98
03		6.8	230					2.90
04		5.3	250					2.75
05		4.8	280					2.60
06		5.4	<300					2.70
07		9.8	255		122	2.50	2.6	3.12
08		12.3	240		111	3.20	3.3	3.10
09		13.5	230		109	3.65	3.8	2.90
10		14.7	225		109	3.90	4.2	2.80
11	---	15.3	220		109	4.02	4.4	2.70
12	(385)	15.5	220	(7.9)	109	4.15	4.2	2.60
13	380	16.2	220	(7.4)	110	4.15	4.4	2.60
14	370	16.3	225	(7.7)	109	4.10	4.5	2.60
15	360	15.7	<240	---	109	3.80	4.4	2.60
16	(350)	15.3	240	---	<110	3.30	4.0	2.60
17		14.8	250	---	<115	2.70	3.0	2.65
18		14.5	255	---	---	---	4.7	2.75
19		13.9	250	---	---	---	4.0	2.75
20		13.5	265	---	---	---	3.0	2.70
21		14.6	260	---	---	---	2.4	2.85
22		(15.1)	245	---	---	---	3.0	(2.95)
23		12.6	230	---	---	---	2.0	3.00

Time: 150.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 5

Puerto Rico, W.I. (18.5°N, 67.2°W)

October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.0	255					2.90
01		8.2	245					2.95
02		7.2	245					3.00
03		6.1	245					2.75
04		5.6	270					2.60
05		5.5	295					2.60
06		5.9	265					2.80
07		9.6	240		(121)	(2.35)		3.20
08		12.0	235		111	3.08	3.1	3.10
09		13.2	230		109	3.52		3.00
10		13.9	230		109	3.05	4.0	2.90
11	---	13.9	220		109	4.00	4.3	2.80
12	---	13.8	220	---	109	(4.10)	4.4	2.70
13	---	13.7	225	---	109	4.10	4.3	2.65
14	---	13.4	230		109	4.00	4.4	2.60
15	---	13.1	235		109	3.75	4.2	2.55
16	---	12.7	240		111	3.40	4.0	2.55
17	---	12.4	245		<117	(2.70)	3.4	2.60
18	---	11.9	255				2.6	2.70
19	---	11.0	255					2.70
20	---	10.0	260					2.70
21	---	9.8	270					2.70
22	---	9.7	270					2.80
23	---	9.2	255					2.80

Time: 60.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 6

Baguio, P.I. (16.4°N, 120.6°E)

October 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(12.5)	250					(2.90)
01		(12.5)	240					(2.98)
02		10.7	230					2.98
03		8.7	235					2.80
04		8.0	255					2.70
05		7.6	265					2.70
06		8.65	300		---	---		2.75
07		12.0	270		121	(2.88)	3.1	2.85
08		14.0	250		117	(3.48)	3.0	2.70
09		15.5	250		119	(3.90)	4.5	2.50
10		16.0	245		119	(4.05)	4.4	2.30
11	---	15.0	240		117	(4.15)	4.4	2.10
12	---	(13.9)	235		119	(4.20)	4.6	(2.05)
13	---	14.0	235		119	(4.15)	4.2	2.10
14	---	14.0	240		119	(4.00)	4.4	2.10
15		(14.0)	250		119	(3.75)	4.3	(2.15)
16		(14.7)	270		119	3.25	3.8	(2.10)
17		(14.0)	290		(121)	(2.45)	2.6	(2.15)
18		(12.9)	350					(2.10)
19		(12.0)	450					(2.10)
20		>12.25	(370)					(2.30)
21		(12.0)	(310)					(2.55)
22		>12.0	280					(2.75)
23		(12.65)	260					(2.85)

Time: 120.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 7

Panama Canal Zone (9.4°N, 79.9°W)							
October 1958							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		9.9	230				2.95
01		8.15	240				3.00
02		6.6	230				2.92
03		5.6	250				2.75
04		4.9	250				2.70
05		4.55	280				2.60
06		6.3	310		114	----	2.3
07		10.65	250		<118	2.60	2.95
08	---	13.0	240		111	3.30	2.95
09	---	14.5	235		107	3.75	2.85
10	---	14.7	230		107	4.02	2.75
11	---	14.5	225		107	4.25	2.65
12	(395)	14.6	230		107	4.30	4.4
13	395	14.6	225	---	107	4.25	4.3
14	420	14.5	230	(7.2)	107	4.05	4.7
15	410	14.4	(235)		107	3.80	4.8
16	(380)	14.1	<250		107	3.35	4.9
17	---	13.8	(255)		(111)	2.70	3.6
18		13.2	275		---	----	3.2
19		13.0	275				2.9
20		12.0	260				2.65
21		12.0	240				2.70
22		11.75	250				2.70
23		11.7	250				2.90

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 9

White Sands, New Mexico (32.3°N, 106.5°W)							
September 1958							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		6.5	300				2.60
01		6.6	300				2.50
02		6.35	300				2.50
03		6.2	<300				2.60
04		6.0	280				2.60
05		5.9	290				2.50
06		7.2	275		---	----	2.02
07		10.0	245		111	2.90	3.05
08	---	11.0	235	---	111	3.40	3.00
09	---	11.65	225	---	109	(3.80)	2.70
10	---	12.1	220	---	107	4.00	2.70
11	---	12.6	215	---	107	4.05	2.60
12	---	12.6	220	---	109	4.10	2.60
13	(420)	12.55	225	6.2	109	4.10	2.55
14	---	12.3	230	---	109	4.00	2.60
15	---	12.25	235	---	109	3.80	4.0
16	---	12.0	240	---	<111	3.35	2.65
17	---	11.5	245	---	115	2.85	3.0
18		10.75	245		---	----	2.75
19		9.55	235				2.70
20		8.35	245				2.60
21		7.65	270				2.65
22		7.1	275				2.65
23		6.9	280				2.60

Time: 105.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Adak, Alaska (51.9°N, 176.6°W)							
August 1958							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		6.0	(325)				2.45
01		5.6	(340)				2.40
02		5.25	(345)				2.32
03		5.0	(355)				2.20
04	---	4.7	360		135	----	1.4
05	(465)	5.7	295	---	121	(2.20)	2.2
06	510	6.7	(260)	4.1	119	2.60	3.0
07	485	7.2	(250)	4.6	111	3.10	3.8
08	490	7.45	(245)	5.0	109	3.45	4.1
09	400	7.6	<235	5.3	109	3.65	4.5
10	460	8.0	<230	5.5	109	3.80	4.4
11	440	8.2	220	5.6	110	3.90	4.2
12	420	8.2	220	5.7	109	3.90	4.2
13	420	8.2	220	5.6	109	3.05	4.4
14	435	8.0	225	5.6	111	3.00	3.9
15	<425	7.65	230	5.4	111	3.55	3.6
16	(395)	7.5	240	5.1	111	3.30	3.4
17	---	7.35	250	---	112	2.90	2.65
18	---	7.4	270	---	119	2.40	2.0
19	---	7.35	<280	---	<125	----	2.6
20		7.4	<200				3.6
21		6.95	205				3.4
22		6.5	290				2.8
23		6.2	(315)				2.50

Time: 180.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8

Fletchers Ice I. (78.7°N, 123.5°W)*							
September 1958							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00	---	(7.1)	(290)		---	----	2.0
01	---	(7.15)	<300		---	----	2.1
02	---	(6.75)	(290)		---	----	2.9
03	---	(7.2)	(290)		---	----	2.6
04	---	6.25	(280)	---	---	----	2.1
05	---	(7.0)	(275)	---	---	----	1.8
06	---	6.8	(290)	---	---	----	2.38
07	---	6.7	<290	---	---	----	2.65
08	---	6.4	(280)	---	<133	1.75	2.70
09	---	(7.0)	(275)	---	(125)	(1.90)	2.70
10	---	6.8	(270)	---	<120	2.12	2.60
11	(455)	6.85	(260)	3.8	<115	2.20	2.50
12	(450)	6.7	(260)	4.0	<115	(2.45)	2.55
13	500	6.5	(255)	4.5	111	(2.55)	2.50
14	(550)	6.55	260	4.2	111	(2.75)	2.50
15	490	6.65	<260	4.5	111	(2.65)	2.50
16	520	6.3	(270)	4.2	(111)	(2.60)	2.40
17	440	6.8	(270)	4.4	(111)	(2.55)	2.45
18	410	6.7	<305	4.2	111	(2.80)	2.50
19	(490)	6.1	<300	3.9	(115)	----	2.55
20	---	6.55	<295	---	<121	(2.45)	2.50
21	(660)	6.3	<290	---	<121	(2.10)	2.50
22	---	7.1	(300)	---	<129	1.95	2.60
23	---	6.0	300	---	<131	1.90	2.60

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

\*Preliminary estimated average position.

Table 10

Godhavn, Greenland (69.3°N, 53.5°W)							
August 1958							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		(5.3)					2.55
01		(5.0)					(2.55)
02		(5.0)					(2.50)
03		(4.9)			---	----	2.62
04		(4.95)			---	----	(2.60)
05		(5.0)			<122	2.35	(2.60)
06		(4.95)			(119)	>2.52	(2.60)
07		(5.5)			4.2	115	----
08		(5.4)			(4.4)	113	3.20
09		(5.85)			(4.8)	111	3.18
10		(6.3)			(4.8)	<111	(3.25)
11		6.6			(4.9)	109	(3.35)
12		(6.75)			(5.1)	(109)	3.40
13		(6.65)			5.2	(111)	3.40
14		(6.6)			(5.1)	111	(3.40)
15		(6.1)			(5.0)	109	3.32
16		6.6			(4.8)	111	3.20
17		(5.95)			(4.8)	<113	----
18		(6.2)			(4.6)	116	(2.92)
19		6.0			---	(121)	----
20		(6.1)				<127	2.40
21		(5.9)				---	----
22		5.7				---	----
23		(5.7)				---	----

Time: 45.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 12

San Francisco, California (37.4°N, 122.2°W)							
August 1958							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		5.8	320				2.5
01		5.6	310				2.4
02		5.6	(300)				2.6
03		5.5	300				2.2
04		5.3	(320)		---	----	2.45
05	---	5.15	325	---	---	----	2.3
06	---	6.3	260	---	119	2.08	2.5
07	(465)	7.5	240	4.5	105	2.90	3.4
08	(470)	8.2	220	4.8	101	3.35	>3.8
09	465	9.0	210	5.4	101	3.65	4.1
10	420	9.7	210	5.8	101	(3.85)	4.2
11	430	9.7	210	5.9	101	3.90	4.2
12	400	9.8	210	5.8	101	4.00	4.3
13	420	9.75	210	5.8	103	4.00	>4.1
14	415	9.3	220	5.9	101	4.00	2.55
15	410	9.0	225	5.6	101	3.80	2.55
16	415	0.6	230	5.5	101	3.55	>3.6
17	---	0.3	240	---	105	3.15	3.4
18		8.0	255		111	2.50	2.0
19		8.0	260		---	----	2.5
20		7.2	250				2.0
21		7.0	260				3.3
22		6.3	280				3.6
23		6.0	(310)				3.5

Time: 120.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 13

Tromsø, Norway (69.7°N, 19.0°E)							
							July 1958
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00	---	5.4	---	---	---	---	4.0 (2.40)
01	---	(5.3)	---	---	---	---	>3.2 (2.40)
02	---	5.4	---	---	---	---	3.9 (2.50)
03	---	(5.9)	(295)	---	---	---	4.2 (2.40)
04	(500)	5.6	(260)	3.90	105	2.70	>3.2 2.40
05	490	5.7	(250)	4.20	100	2.05	3.2 2.40
06	500	5.8	250	4.50	105	3.10	2.30
07	525	5.9	245	4.70	105	3.20	2.40
08	475	6.2	245	4.90	100	3.20	2.40
09	465	6.5	240	5.05	105	---	2.40
10	470	6.6	240	5.20	100	---	2.45
11	475	6.6	225	5.25	105	---	2.40
12	485	6.5	225	5.25	105	3.55	2.40
13	495	6.5	215	5.20	105	3.60	2.45
14	515	6.4	215	5.10	105	3.55	2.40
15	500	6.3	240	4.95	105	3.50	2.45
16	470	6.1	245	4.90	105	3.40	2.55
17	(460)	6.1	255	4.70	105	3.20	2.55
18	---	6.0	255	---	105	3.00	3.9 2.70
19	---	6.0	(255)	---	105	3.10	3.6 2.70
20	---	5.0	(270)	---	105	---	3.0 2.60
21	---	5.8	(270)	---	100	---	3.6 2.55
22	(305)	5.4	(300)	---	---	---	3.2 2.50
23	---	5.5	(320)	---	---	2.40	>3.2 2.55

Time: 15.0°E.

Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 15

Inverness, Scotland (57.4°N, 4.2°W)							
							July 1958
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00	---	(6.4)	320	---	---	---	2.4 2.35
01	---	6.2	315	---	---	---	2.7 2.35
02	---	(5.8)	325	---	---	---	2.5 (2.4)
03	---	5.4	340	---	115	1.40	2.2 2.30
04	510	5.6	300	---	110	1.05	2.3 2.5
05	400	5.7	265	---	110	2.25	2.55
06	440	6.0	250	4.2	110	2.70	2.0 2.6
07	475	6.3	245	4.6	105	3.05	3.3 2.55
08	420	6.7	235	5.0	105	3.30	3.6 2.6
09	435	6.7	230	5.2	105	3.50	3.0 2.6
10	445	6.9	230	5.5	105	3.70	4.0 2.55
11	455	7.0	220	5.5	105	3.75	4.0 2.55
12	475	7.0	220	5.6	105	3.85	4.0 2.5
13	455	7.2	220	5.6	105	3.00	2.55
14	455	7.1	230	5.5	105	3.70	2.55
15	450	7.2	245	5.4	105	3.65	2.55
16	415	7.3	240	5.4	105	3.60	2.6
17	410	7.3	245	5.1	110	3.35	3.4 2.6
18	390	7.2	250	---	110	3.00	3.2 2.7
19	365	7.3	255	---	115	2.60	2.9 2.7
20	---	7.2	270	---	120	2.15	2.3 2.7
21	---	7.0	290	---	110	1.75	2.0 2.65
22	---	6.9	300	---	---	---	<1.6 (2.4)
23	---	6.9	300	---	---	---	1.6 2.45

Time: 0.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 17

Winnipeg, Canada (49.9°N, 97.4°W)							
							July 1958
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs (M3000)F2
00	---	5.0	300	---	---	---	2.0 (2.7)
01	---	4.5	310	---	---	---	3.0 (2.8)
02	---	4.0	340	---	---	---	3.0 ---
03	---	4.2	340	---	---	---	4.0 ---
04	---	4.0	320	---	---	---	2.9 ---
05	---	4.4	260	---	100	1.9	2.8 ---
06	(500)	4.9	240	4.0	110	2.6	2.9
07	490	5.1	220	4.3	100	3.0	2.6
08	500	5.2	220	4.6	100	3.4	2.5
09	550	5.4	210	4.0	100	3.6	2.4
10	520	5.0	200	5.0	100	3.0	2.5
11	510	6.0	200	5.0	100	4.0	2.5
12	500	6.0	200	5.1	100	4.0	2.5
13	520	6.1	210	5.2	100	4.0	2.4
14	510	6.2	210	5.1	100	4.0	2.5
15	540	6.2	210	5.1	100	3.9	2.4
16	490	6.3	210	5.0	100	3.7	2.5
17	440	6.6	220	4.9	100	3.3	2.6
18	420	6.7	230	4.6	100	3.0	2.7
19	---	6.7	240	---	110	2.7	2.9
20	---	6.6	270	---	120	2.0	2.9
21	---	6.7	270	---	---	---	2.9
22	---	6.0	200	---	---	---	2.4 2.8
23	---	5.2	200	---	---	---	2.8 (2.75)

Time: 90.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 14

Sodankylä, Finland (67.4°N, 26.6°E)							
							July 1958
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00	---	5.8	400	---	---	---	4.0 (2.50)
01	---	5.8	375	---	---	---	4.0 2.50
02	---	5.5	360	---	---	---	4.1 2.45
03	---	5.6	320	---	110	2.20	4.2 2.40
04	---	5.7	270	---	125	2.40	4.1 2.50
05	---	5.6	250	---	100	2.70	4.4 2.40
06	---	5.7	240	4.2	110	2.90	5.2 2.45
07	---	6.0	240	4.4	100	3.15	5.4 2.40
08	---	6.2	230	4.8	100	3.30	5.4 2.40
09	---	6.4	225	4.9	100	3.40	5.5 2.40
10	---	6.5	225	5.0	100	3.60	6.0 2.40
11	---	6.6	220	5.2	100	3.65	6.1 2.40
12	---	6.5	220	5.2	100	3.65	6.0 2.40
13	---	6.6	215	5.2	100	3.60	5.6 2.45
14	---	6.7	215	5.1	100	3.60	5.4 2.40
15	---	6.5	220	---	100	3.50	5.2 2.50
16	---	6.3	220	---	105	3.40	5.0 2.50
17	---	6.2	230	---	105	3.30	5.2 2.60
18	---	6.1	240	---	110	3.00	4.9 2.65
19	---	6.1	250	---	110	2.00	4.5 2.70
20	---	6.3	270	---	110	2.50	4.5 2.70
21	---	5.9	290	---	115	2.35	4.1 2.70
22	---	5.9	330	---	115	2.20	3.5 2.65
23	---	5.9	350	---	---	---	4.1 2.60

Time: 30.0°E.

Sweep: 1.4 Mc to 22.0 Mc in 8 minutes, automatic operation.

Table 16

Moscow, U.S.S.R. (55.5°N, 37.3°E)							
							July 1958
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00	---	6.4	295	---	---	---	E <1.5 2.55
01	---	6.0	300	---	---	---	E <1.5 2.55
02	---	5.0	300	---	---	---	E 2.50
03	(330)	5.7	300	---	---	1.60	1.6 2.55
04	325	6.0	270	3.5	---	2.10	2.2 2.65
05	370	6.3	240	4.4	---	2.60	2.9 2.65
06	400	6.6	230	4.0	---	3.10	3.4 2.60
07	405	6.0	220	5.0	---	3.40	3.6 2.60
08	420	7.4	210	5.3	---	3.60	4.0 2.50
09	410	7.4	220	5.5	---	3.00	4.2 2.55
10	425	7.6	210	5.6	---	3.95	4.4 2.55
11	430	7.4	210	5.6	---	4.00	4.3 2.60
12	430	7.0	210	5.7	---	4.00	4.3 2.55
13	430	7.6	210	5.7	---	3.95	4.0 2.55
14	420	7.2	210	5.5	---	3.00	4.0 2.60
15	415	7.1	220	5.5	---	3.65	3.7 2.60
16	375	7.1	225	5.4	---	3.45	3.8 2.65
17	350	7.3	235	4.9	---	3.10	3.4 2.70
18	310	7.4	250	4.3	---	2.00	3.6 2.00
19	(275)	7.2	260	---	---	2.30	3.0 2.05
20	---	7.2	270	---	---	1.75	2.6 2.00
21	---	7.3	270	---	---	1.20	2.3 2.70
22	---	7.4	275	---	---	E	1.7 2.60
23	---	7.0	200	---	---	E	<1.0 2.60

Time: 30.0°E.

Sweep: 1.0 Mc to 10.0 Mc in 20 seconds.

Table 18

Graz, Austria (47.1°N, 15.5°E)							
							July 1958
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs (M3000)F2
00	---	>6.6	340	---	---	---	4.0
01	---	>7.0	340	---	---	---	4.0
02	---	>5.5	330	---	---	---	4.4
03	---	(5.9)	340	---	---	---	4.7
04	---	>4.9	335	---	---	---	4.3
05	---	(6.6)	205	---	---	---	4.3
06	(380)	(6.9)	250	(4.5)	---	---	4.3
07	(340)	(7.8)	240	4.0	---	---	4.4
08	(360)	7.9	230	5.2	100	3.5	4.4
09	(400)	8.1	210	>5.3	100	3.6	4.7
10	400	8.2	210	>5.4	100	3.7	4.3
11	400	8.3	210	---	100	3.9	4.3
12	400	8.4	205	>5.6	(100)	(4.0)	4.3
13	400	8.3	210	---	(100)	---	4.0
14	400	8.3	210	(5.6)	---	---	4.0
15	390	0.1	230	(5.3)	110	3.0	4.0
16	(400)	>8.0	230	(4.9)	110	3.6	4.3
17	---	7.9	240	---	(120)	(3.2)	4.4
18	(0.1)	260	---	---	---	---	4.0
19	(8.0)	280	---	---	---	---	3.6
20	>7.2	200	---	---	---	---	---
21	>6.8	300	---	---	---	---	---
22	>6.6	300	---	---	---	---	---
23	>6.6	320	---	---	---	---	---

Time: 15.0°E.

Sweep: 2.0 Mc to 20.0 Mc in 50 seconds.



Table 19  
Schwarzenburg, Switzerland (46.8°N, 7.3°E)

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	7.5						2.9
01	300	7.2						2.8
02	300	6.8						2.0
03	300	6.4						2.9
04	300	6.1					2.4	2.9
05	300	6.0	---	---	120	1.9	2.9	3.0
06	290	6.8	260	4.0	100	2.4	3.5	3.1
07	300	7.4	230	4.7	100	3.0	4.4	3.25
08	320	7.6	220	5.2	100	3.3	4.6	3.1
09	360	7.7	210	5.4	100	3.6	4.7	3.1
10	380	7.0	200	5.6	100	3.0	4.6	2.9
11	410	8.2	200	5.9	100	3.8	5.0	2.9
12	400	8.3	200	5.9	100	3.9	4.9	2.9
13	400	0.1	210	5.9	100	4.0	4.5	2.9
14	400	7.8	200	6.0	100	3.9	4.3	2.9
15	410	7.9	210	5.7	100	3.8		2.9
16	390	7.8	220	5.5	100	3.7	4.3	3.0
17	360	7.8	220	5.3	100	3.4	4.4	3.0
18	320	7.8	230	4.8	100	3.0	4.4	3.1
19	290	8.0	240	4.6	100	2.5	4.0	3.15
20	260	8.0	---	---	---	---	3.6	3.2
21	260	8.0					3.0	3.0
22	200	7.8					3.6	3.0
23	290	7.7					2.4	2.9

Time: 15.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 21

Natal, Brazil (5.3°S, 35.1°W)

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		(4.45)	(400)					---
01		(4.5)	<340					---
02		(4.6)	310					(2.65)
03		4.45	(200)					(3.00)
04		4.55	(250)					3.15
05		4.2	250					3.10
06		3.55	255					3.10
07		7.6	255					3.15
08		10.3	240		111	3.20		3.05
09		11.8	225		109	3.50		3.00
10		12.7	220		107	---		2.78
11		12.95	210		103	---		2.50
12		13.3	<220		106	---		2.40
13	---	13.3	<220	---	(108)	---		2.30
14	---	12.7	215		---	---		2.20
15	---	12.4	<215		(105)	---	4.2	2.15
16		11.85	230		(111)	(3.50)		2.20
17		11.4	250		117	(3.05)	3.8	2.30
18		>10.55	275					2.28
19		>9.0	310					(2.26)
20		>7.0	410					2.10
21		6.5	<475					2.15
22		(5.4)	450					(2.20)
23		(5.05)	(420)					(2.40)

Time: 30.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 32.4 seconds.

Table 23

Hobart, Tasmania (42.9°S, 147.2°E)

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		4.3	200					2.70
01		>4.0	290					2.65
02		4.0	300					2.65
03		3.8	290				3.4	2.70
04		4.0	200					2.80
05		3.7	250					2.05
06		(3.2)	260					2.75
07		3.5	260					2.90
08		6.0	230					3.20
09		(8.2)	230		120	2.70		3.30
10		(9.0)	230		120	3.10	3.5	3.15
11		(10.3)	230		120	3.25	3.9	3.20
12		>11.0	230		120	3.35	4.0	3.15
13		(11.1)	230		120	3.30	4.0	3.00
14		>11.0	230		120	3.20	3.6	(3.05)
15		>10.5	230		120	3.00	3.5	(2.85)
16		>10.0	230		---	---		---
17		>9.5	230					(3.05)
18		>8.5	230					3.00
19		7.3	230					2.90
20		6.0	250					2.90
21		>5.1	250					(2.80)
22		>4.4	260					2.00
23		4.3	270					2.70

Time: 150.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 20

San Francisco, California (37.4°N, 122.2°W)

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.6	325					3.4
01		5.6	310					3.0
02		5.45	310					3.0
03		5.25	315					2.6
04		4.85	325					2.0
05		4.85	310		129	---		3.4
06	(435)	5.7	250		4.0	111	2.35	3.0
07	490	6.4	230		4.5	101	3.05	3.6
08	510	7.0	220		4.8	101	3.45	4.2
09	435	7.4	210		5.1	101	3.70	4.3
10	<460	7.6	205		5.3	101	3.80	4.5
11	450	0.0	210		5.4	101	4.00	4.6
12	430	8.2	210		5.5	101	(4.00)	>4.4
13	440	0.7	215		5.5	101	3.95	>4.2
14	425	0.0	220		5.5	101	3.90	4.1
15	415	8.6	220		5.4	101	3.75	>3.8
16	390	8.0	230		5.1	101	3.58	3.6
17	380	7.7	230		4.8	101	3.20	3.8
18	---	7.55	240			105	2.70	3.4
19		7.15	270			<123	2.00	3.4
20		6.0	<260					3.6
21		6.4	270					3.5
22		6.25	<290					3.8
23		5.7	300					3.2

Time: 120.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 22

Brisbane, Australia (27.5°S, 152.9°E)

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.2	255					2.70
01		4.9	260					2.75
02		4.7	260					2.75
03		4.7	260				2.4	2.65
04		4.2	260					2.70
05		4.2	265					2.70
06		4.2	250				<1.60	2.00
07		8.0	240		140	1.80		3.10
08		10.2	235		120	<2.80		3.15
09		11.6	230		120	3.30		3.15
10		11.0	225		120	3.50		3.10
11		11.2	220		120	3.70	3.8	2.90
12		10.8	220		120	3.70	4.0	2.85
13		11.0	220		120	>3.60	4.0	2.85
14		10.6	240		120	>3.50	3.8	2.80
15		10.0	240		120	3.25	3.7	2.00
16		10.6	240		120	2.70	3.0	2.80
17		9.0	240		140	<2.20	3.2	2.85
18		8.5	230			<1.60	2.0	2.80
19		7.5	240				2.2	2.75
20		7.0	250				2.1	2.70
21		6.5	250					2.70
22		6.3	250					2.70
23		5.7	250					2.85

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 24

Thule, Greenland (76.6°N, 68.7°W)

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		505	5.6	250	3.6	111	(2.40)	2.60
01		(595)	5.75	245	3.6	110	(2.50)	2.72
02		550	5.3	240	3.8	109	(2.50)	2.50
03		465	5.2	230	4.0	109	2.65	2.55
04		600	5.1	235	4.2	107	2.80	2.40
05		560	5.3	235	4.3	105	2.95	2.30
06		575	<4.7	230	4.5	103	3.10	6
07		540	4.95	220	4.5	101	3.20	2.15
08		610	5.4	225	4.5	101	3.30	2.20
09		615	5.2	230	4.8	101	(3.40)	2.05
10		550	5.6	225	4.8	101	3.40	2.20
11		555	5.5	220	4.8	101	3.45	2.30
12		640	5.3	215	4.0	99	3.45	2.20
13		570	5.6	210	4.0	101	3.40	2.30
14		525	5.75	215	4.0	101	3.38	2.30
15		515	5.8	215	4.7	101	3.30	2.35
16		520	5.7	215	4.7	101	3.20	2.35
17		460	5.8	220	4.5	103	3.10	2.50
18		420	5.95	225	4.4	105	2.95	2.40
19		420	5.7	230	4.2	107	2.80	2.50
20		410	5.9	240	4.0	109	2.70	2.55
21		430	5.7	240	3.9	110	2.60	2.58
22		470	5.5	250	3.8	109	2.50	2.50
23		(500)	5.6	250	3.8	109	(2.40)	2.60

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.



Table 25

Kiruna, Sweden (67.8°N, 20.3°E)

June 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	5.6	365	---	---	---	4.5	2.4
01	---	6.0	318	---	---	---	5.8	2.4
02	(415)	5.9	(300)	3.2	---	---	4.8	2.4
03	420	6.0	260	3.6	(105)	2.2	4.0	2.4
04	420	6.1	250	4.1	100	2.6	4.0	2.4
05	450	6.0	250	4.4	100	2.8	3.4	2.4
06	490	6.0	235	4.5	100	3.0	---	2.4
07	500	6.1	235	4.9	100	3.1	---	2.4
08	500	6.3	225	5.0	100	3.2	---	2.4
09	495	6.4	220	5.0	100	3.3	---	2.4
10	500	6.5	225	5.2	100	3.3	---	2.4
11	515	6.3	220	5.2	100	3.4	---	2.4
12	530	6.3	220	5.2	100	3.4	3.5	2.4
13	510	6.3	215	5.2	100	3.4	---	2.4
14	500	6.3	215	5.2	100	3.3	---	2.4
15	485	6.2	220	5.2	100	3.2	3.7	2.4
16	445	6.3	230	5.0	100	3.2	3.3	2.55
17	430	6.3	235	5.0	100	3.0	4.0	2.6
18	(400)	6.3	245	4.6	105	2.9	4.0	2.6
19	---	6.2	250	4.5	105	2.7	4.1	2.6
20	---	6.1	280	---	110	2.4	4.5	2.6
21	---	6.0	310	---	---	2.3	4.9	2.5
22	---	6.0	350	---	---	---	4.6	2.6
23	---	6.0	350	---	---	---	4.0	2.5

Time: 15.0°E.

Sweep: 0.0 Mc to 14.0 Mc in 30 seconds.

Table 26

Slough, England (51.5°N, 0.6°W)

June 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	7.4	320	---	---	---	<1.4	2.30
01	---	7.0	320	---	---	---	<1.4	2.40
02	---	6.0	320	---	---	---	1.4	2.40
03	---	6.6	315	---	---	---	<1.40	2.45
04	---	6.8	300	---	115	1.05	2.2	2.45
05	---	7.2	260	---	115	2.45	2.7	2.50
06	450	7.4	250	4.2	105	2.95	3.4	2.55
07	415	7.6	240	5.1	105	3.40	3.9	2.55
08	440	7.3	235	5.3	100	3.65	4.6	2.50
09	450	7.6	215	5.6	100	3.85	4.2	2.45
10	430	7.6	220	5.6	100	4.00	4.6	2.50
11	445	7.8	210	5.8	100	4.05	4.4	2.45
12	450	8.0	220	5.0	100	4.10	4.3	2.45
13	450	7.0	215	5.7	100	4.10	4.6	2.50
14	430	7.7	225	5.7	100	3.95	4.6	2.50
15	430	7.0	230	5.6	100	3.95	4.2	2.50
16	415	7.0	230	5.5	100	3.75	4.6	2.55
17	390	8.0	240	---	105	3.45	4.3	2.60
18	---	8.0	250	---	105	3.00	5.1	2.65
19	---	8.2	270	---	120	2.50	3.8	2.65
20	---	8.0	275	---	140	1.90	3.0	2.65
21	---	8.0	280	---	---	---	3.0	2.55
22	---	8.2	290	---	---	---	1.7	2.45
23	---	(8.2)	295	---	---	---	1.6	2.40

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 27

Wakkanai, Japan (45.4°N, 141.7°E)

June 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	8.4	315	---	---	---	2.8	2.50
01	---	8.2	300	---	---	---	2.7	2.50
02	---	7.8	300	---	---	---	2.5	2.50
03	---	7.5	310	---	---	---	3.0	2.50
04	---	7.6	290	---	---	1.75	3.1	2.50
05	---	8.4	260	---	---	2.55	2.9	2.50
06	390	8.8	260	4.6	---	3.10	3.5	2.55
07	420	8.8	250	5.1	---	3.50	5.0	2.60
08	470	8.5	250	5.3	---	3.65	6.3	2.50
09	490	8.1	240	5.6	---	3.80	6.0	2.45
10	490	7.6	235	5.7	---	3.90	5.3	2.40
11	405	7.7	235	5.7	---	3.95	5.2	2.45
12	490	7.8	235	5.7	---	3.95	4.8	2.45
13	490	7.6	240	5.7	---	3.75	4.6	2.45
14	465	7.7	250	5.6	---	3.70	4.5	2.45
15	450	7.9	240	5.4	---	3.60	4.8	2.50
16	450	7.8	250	5.3	---	3.50	4.7	2.50
17	420	8.0	260	4.8	---	3.10	5.2	2.60
18	---	7.8	275	---	---	2.55	5.5	2.60
19	---	8.1	300	---	---	---	4.5	2.60
20	---	8.3	305	---	---	---	5.2	2.55
21	---	8.3	320	---	---	---	3.5	2.45
22	---	(8.4)	325	---	---	---	3.3	(2.45)
23	---	(8.5)	320	---	---	---	2.5	(2.50)

Time: 135.0°E.

Sweep: 1.0 Mc to 20.7 Mc in 1 minute.

Table 28

Akita, Japan (39.7°N, 140.1°E)

June 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	9.2	320	---	---	---	2.7	2.55
01	---	9.1	305	---	---	---	2.7	2.60
02	---	8.5	305	---	---	---	2.7	2.60
03	---	8.0	305	---	---	---	2.8	2.55
04	---	8.0	310	---	---	---	2.4	2.50
05	(305)	8.9	260	---	---	2.30	---	2.60
06	300	9.5	250	5.0	---	3.00	3.6	2.60
07	345	9.8	250	5.4	---	3.50	4.8	2.60
08	380	9.4	250	5.8	---	3.75	6.0	2.50
09	410	9.3	250	6.0	---	4.00	6.5	2.55
10	440	9.1	245	6.0	---	4.00	5.5	2.45
11	440	9.3	250	6.0	---	4.00	6.6	2.45
12	420	9.3	245	6.0	---	4.00	5.8	2.50
13	410	9.3	245	5.9	---	4.00	4.9	2.45
14	425	9.3	250	5.9	---	3.95	5.9	2.50
15	400	9.2	245	5.8	---	3.90	4.9	2.55
16	400	9.0	250	5.6	---	3.60	4.7	2.55
17	360	0.8	255	5.2	---	3.10	4.9	2.65
18	340	8.7	275	---	---	2.50	5.5	2.70
19	---	8.6	300	---	---	---	5.2	2.65
20	---	0.6	305	---	---	---	4.2	2.50
21	---	8.7	345	---	---	---	4.0	2.40
22	---	9.0	350	---	---	---	5.6	2.45
23	---	9.1	340	---	---	---	4.5	2.45

Time: 135.0°E.

Sweep: 1.6 Mc to 20.0 Mc in 20 seconds.

Table 29

Tokyo, Japan (35.7°N, 139.5°E)

June 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	(9.4)	320	---	---	---	4.2	(2.55)
01	---	9.2	300	---	---	---	3.4	2.60
02	---	8.6	300	---	---	---	3.0	2.60
03	---	8.3	310	---	---	---	3.6	2.55
04	---	8.0	310	---	---	---	3.4	2.55
05	---	8.6	255	---	---	2.30	2.4	2.70
06	---	9.4	250	---	---	2.95	3.5	2.75
07	360	9.7	250	---	---	3.40	5.2	2.60
08	360	9.6	250	---	---	3.70	5.8	2.55
09	390	9.6	250	6.0	---	3.90	7.5	2.50
10	415	9.7	(250)	6.4	---	4.00	7.2	2.45
11	420	10.1	230	6.1	(4.10)	6.7	2.50	2.50
12	410	10.2	240	6.2	(4.10)	5.5	2.50	2.50
13	405	10.3	245	6.2	(4.10)	5.0	2.50	2.50
14	405	10.2	240	6.0	---	4.10	5.0	2.50
15	400	10.0	245	5.9	---	3.90	5.0	2.55
16	390	9.7	250	5.6	(3.60)	5.6	2.60	2.60
17	350	9.4	260	---	---	3.20	5.2	2.65
18	<375	9.2	280	---	---	2.50	5.0	2.70
19	---	8.9	295	---	---	---	5.4	2.60
20	---	0.4	330	---	---	---	5.5	2.45
21	---	(8.0)	350	---	---	---	4.5	(2.40)
22	---	9.2	350	---	---	---	4.9	2.45
23	---	9.4	350	---	---	---	5.0	2.50

Time: 135.0°E.

Sweep: 1.0 Mc to 20.0 Mc in 20 seconds.

Table 30

Yamagawa, Japan (31.2°N, 130.6°E)

June 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	9.8	320	---	---	---	4.4	2.60
01	---	9.8	300	---	---	---	4.2	2.70
02	---	9.0	280	---	---	---	3.6	2.70
03	---	8.6	290	---	---	---	3.2	2.70
04	---	0.3	295	---	---	---	3.1	2.60
05	---	8.3	290	---	---	---	3.1	2.65
06	---	9.0	245	---	---	2.35	3.0	2.90
07	---	9.3	235	---	---	3.05	3.7	2.95
08	---	9.2	240	---	---	3.50	5.0	2.75
09	---	9.3	250	---	---	3.80	6.8	2.65
10	415	9.6	245	6.4	---	4.00	7.2	2.45
11	400	10.4	240	6.5	---	4.00	7.0	2.50
12	400	10.6	230	6.3	---	4.10	6.8	2.55
13	395	11.0	240	6.2	---	4.15	6.5	2.60
14	395	11.0	250	6.2	---	4.10	6.6	2.55
15	300	11.3	250	6.2	---	4.05	6.2	2.60
16	360	11.2	250	5.9	---	3.80	6.8	2.65
17	345	11.2	250	5.6	---	3.40	6.7	2.70
18	300	10.6	270	---	---	2.00	5.8	2.70
19	---	10.0	290	---	---	---	5.5	2.70
20	---	9.4	300	---	---	---	5.0	2.60
21	---	9.0	335	---	---	---	4.3	2.45
22	---	9.4	350	---	---	---	4.4	2.45
23	---	9.7	330	---	---	---	4.3	2.50

Time: 135.0°E.

Sweep: 1.0 Mc to 20.0 Mc in 1 minute.

Table 31

Ibadan, Nigeria (7.4°N, 3.9°E)							
June 1950							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		(5.2)	445				
01		(5.2)	410				----
02		(5.4)	355				----
03		(5.7)	265				----
04		(4.9)	245				3.30
05		4.0	245				3.05
06		0.4	260		120	2.30	3.05
07		11.3	240		110	3.15	3.00
08		12.9	230		105	3.65	2.75
09		13.6	220		105	4.00	2.55
10		13.2	215		105	4.20	2.20
11		12.3	205		105	4.30	2.20
12		11.6	205		105	4.35	2.10
13		11.2	200		105	4.30	2.10
14		11.2	200		105	4.10	2.10
15		11.1	215		105	3.60	2.10
16		11.2	235		105	3.40	2.15
17		11.1	250		110	2.85	2.10
18		10.7	295		(150)	1.90	2.20
19		(9.1)	390		----	----	(2.10)
20		(7.4)	425				(1.90)
21		(6.0)	450				----
22		(6.5)	430				----
23		(5.6)	430				----

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 33

Townsville, Australia (19.3°S, 146.7°E)							
June 1950							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		5.5	250				2.80
01		5.5	250				2.80
02		5.0	250				2.90
03		4.3	250				3.00
04		3.0	250				2.65
05		3.9	200				2.75
06		4.2	255				2.90
07		>7.6	240		<150	2.10	----
08		>10.0	230		105	2.90	3.3
09		(13.0)	240		100	3.40	(3.10)
10		13.0	230		100	3.65	3.05
11		>12.0	220		100	3.90	4.1
12		12.4	220		100	4.00	2.70
13		12.0	220		100	3.90	4.2
14		>12.0	230		110	3.60	4.1
15		>12.0	230		110	3.45	4.2
16		>11.0	240		110	3.20	<2.70
17		>10.0	245		110	2.50	3.5
18		>9.0	240				3.0
19		(8.0)	230				3.2
20		>7.0	250				(3.00)
21		(7.0)	250				(2.00)
22		>6.5	<250				(2.90)
23		>5.9	<245				(2.00)

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 35

Hobart, Tasmania (42.9°S, 147.2°E)							
June 1950							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		>4.2	200				2.70
01		>4.1	290				2.65
02		3.9	290				2.70
03		4.1	200				2.70
04		3.9	270				2.80
05		3.6	260				2.00
06		3.7	260				2.95
07		3.0	260				2.05
08		7.0	240		----	----	(3.15)
09		(8.9)	230		120	2.65	(3.30)
10		10.2	230		120	3.05	3.15
11		>10.0	230		120	3.25	(3.00)
12		>11.0	230		120	3.30	(3.10)
13		>11.0	230		120	3.30	(2.90)
14		>11.0	230		120	3.20	(2.05)
15		>10.5	240		120	2.00	----
16		>10.0	230		----	2.35	(2.75)
17		>10.0	230				----
18		9.0	240				(2.90)
19		>7.5	230				(2.90)
20		6.4	240				2.90
21		>5.0	250				2.00
22		>4.4	270				2.00
23		4.2	280				2.75

Time: 150.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 32

Singapore, British Malaya (1.3°N, 103.0°E)							
June 1950							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		11.8	240				3.2
01		10.8	225				3.0
02		9.1	225		----	----	2.0
03		7.5	230		120	----	2.7
04		6.9	235				2.0
05		5.6	240		105	----	2.4
06	----	7.0	205	----	110	<1.50	2.7
07	----	11.4	255	----	115	2.00	3.4
08	----	13.6	250	----	110	3.40	4.0
09	----	15.0	240	----	110	3.85	4.6
10	----	15.0	230	----	110	4.10	4.6
11	----	>14.6	215	----	105	4.25	2.30
12	300	13.8	215	(5.4)	105	<4.30	2.20
13	435	(13.2)	210	----	105	4.25	2.00
14	480	13.1	210	5.8	110	4.10	4.2
15	----	12.8	215	----	110	3.00	4.3
16	----	12.8	245	----	110	3.45	3.9
17	----	>12.0	250	----	110	2.75	3.4
18	----	13.2	205	----	----	(1.65)	3.4
19	----	>13.2	315	----	----	----	3.0
20	----	>12.9	340	----	----	----	2.0
21	----	>12.2	290	----	----	----	2.0
22	----	>12.2	250	----	----	----	3.3
23	----	>12.7	245	----	----	----	3.7

Time: 105.0°E.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 34

Canberra, Australia (35.3°S, 149.0°E)							
June 1950							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		(5.0)	250				2.85
01		4.8	250				2.90
02		4.8	250				1.8
03		4.9	250				2.0
04		4.0	240				1.6
05		4.3	220				1.2
06		4.2	220				3.00
07		5.7	215		110	<1.65	3.20
08		>9.0	200		100	2.50	3.50
09		>11.0	200		100	2.90	3.4
10		11.7	200		100	3.30	3.5
11		12.0	200		100	3.50	3.7
12		12.0	200		100	3.50	3.7
13		12.0	200		100	3.40	3.6
14		12.0	200		100	3.50	3.7
15		11.0	205		100	3.40	3.6
16		>11.4	210		100	3.05	3.2
17		11.0	200		100	2.60	2.6
18		>9.0	195		100	1.70	2.2
19		>7.8	200				3.10
20		>7.0	210				3.20
21		5.0	<220				3.10
22		5.2	(235)				3.00
23		5.0	(240)				2.90

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 36

Falkland Is. (51.7°S, 57.0°W)							
June 1950							
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs (M3000)F2
00		3.3	350				1.0
01		3.3	350				2.30
02		3.2	350				2.35
03		3.2	320				2.35
04		3.2	300				2.45
05		3.2	300				2.55
06		2.0	250				2.50
07		3.8	260		100	1.5	----
08		6.0	240		155	1.9	(3.30)
09		9.1	220		----	(2.4)	2.8
10		10.0	230		----	2.7	3.3
11		10.0	235		----	2.9	3.7
12		10.7	235		----	2.9	3.4
13		10.0	240		----	2.9	3.1
14		9.5	235		----	2.7	3.2
15		9.2	235		----	2.4	3.0
16		7.4	215		----	1.8	3.0
17		5.8	225				2.0
18		4.7	230				3.1
19		3.0	240				2.4
20		3.2	230				<1.7
21		3.0	<300				2.2
22		3.1	<320				2.1
23		3.3	335				1.8

Time: 60.0°W.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 37

Sao Paulo, Brazil (23.5°S, 46.5°W)

May 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		11.6	240				<2.2	3.00
01		11.0	240				<2.1	2.90
02		9.4	240				<2.1	3.00
03		8.1	240				<2.1	2.95
04		6.2	240				<2.1	2.90
05		5.4	270				<2.1	2.90
06		5.0	290				<2.1	2.60
07		8.8	270			----		2.05
08		12.2	260			3.00		3.00
09		14.0	250			3.40		3.00
10		>14.0	240			3.60		2.90
11		>14.0	240			3.75		2.75
12		(14.3)	235			3.85		(2.65)
13	(430)	14.1	230	7.3		3.90		(2.60)
14	420	(14.2)	240	7.0		3.65	4.2	(2.50)
15	(410)	(14.4)	250	7.0		(3.45)	3.9	(2.50)
16		>14.0	260			----	4.3	(2.50)
17		(14.3)	270			----	3.3	(2.60)
18		>14.0	270				3.8	(2.75)
19		>14.0	260				3.2	(2.75)
20		(13.4)	275				<2.3	(2.70)
21		13.4	260				<2.2	(2.00)
22		13.2	240				<2.2	(2.90)
23		12.4	240				2.3	3.00

Time: 45.0°N.

Sweep: 1.75 Mc to 20.0 Mc in 2 minutes 30 seconds.

Table 38

Schwarzenburg, Switzerland (46.8°N, 7.3°E)

April 1958

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		340	7.7					2.6
01		340	7.4					2.6
02		320	7.2					2.6
03		320	6.9					2.6
04		320	6.4					2.6
05		320	6.2					2.7
06		200	6.8	---	---	120	2.10	3.0
07		260	7.8	260	4.9	110	2.60	3.1
08		240	8.4	240	5.2	100	3.00	3.15
09		300	9.5	230	5.7	100	3.40	3.0
10		310	10.3	220	6.0	100	3.60	3.0
11		340	11.4	220	7.0	100	3.70	2.9
12		360	12.0	220	6.8	100	3.80	2.8
13		360	12.0	230	6.8	100	3.80	2.8
14		370	11.5	230	6.6	100	3.60	2.8
15		360	11.6	240	7.0	100	3.70	2.8
16		340	10.8	240	6.6	100	3.50	2.8
17		260	10.6	250	6.2	100	3.10	2.9
18		260	10.0	---	---	110	2.55	2.95
19		270	9.0			110	2.20	3.0
20		260	8.9					3.0
21		270	8.4					2.9
22		300	7.8					2.8
23		310	7.7					2.7

Time: 15.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 39

Ibadan, Nigeria (7.4°N, 3.9°E)

April 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		(8.2)	355					----
01		(8.4)	340					----
02		(8.4)	295					(2.70)
03		(8.9)	255					(2.90)
04		(9.0)	240					(3.05)
05		7.2	225					3.30
06		>9.5	260		130	2.20		3.00
07		(12.7)	245		110	3.10	3.2	3.00
08		>14.5	240		110	3.70		2.70
09		(15.3)	230		105	4.05	8.8	(2.45)
10		>15.3	220		105	(4.30)	8.8	(2.25)
11		>14.8	215		105	(4.35)	8.8	2.15
12		13.0	210		105	(4.40)	0.9	2.05
13		13.5	210		105	(4.30)	8.8	2.05
14		13.6	210		105	(4.15)	0.0	2.00
15		>13.3	230		110	(3.00)	0.7	(2.00)
16		(12.4)	250		110	(3.40)	5.5	(2.00)
17		>11.6	270		115	2.80	3.2	(2.00)
18		(11.0)	320		---	1.65		(2.00)
19		(9.1)	455		---	----		<1.90
20		(8.4)	490					(1.75)
21		(8.4)	485					----
22		(8.3)	435					----
23		(8.2)	390					(2.10)

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 40

Ibadan, Nigeria (7.4°N, 3.9°E)

March 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		(10.0)	255					(2.65)
01		(9.8)	250					(2.90)
02		(10.4)	250					2.90
03		(10.0)	240					3.00
04		0.5	220					(3.20)
05		>6.7	215					3.40
06		(8.1)	250			150	1.90	3.05
07		(11.2)	245			110	2.95	(3.10)
08		13.5	240			105	3.60	5.3
09		14.2	225			105	3.95	8.7
10		(14.0)	220			105	(4.30)	8.0
11		(13.3)	210			105	(4.40)	8.5
12		13.1	210			105	(4.40)	7.0
13		13.1	215			105	(4.30)	0.0
14		12.8	220			105	(4.20)	8.6
15		>12.3	230			105	3.90	7.0
16		12.0	250			105	3.50	2.05
17		11.5	265			110	2.80	3.1
18		>11.0	310			<160	1.70	(2.10)
19		(9.2)	450			----		(2.00)
20		(8.6)	410					(2.05)
21		(9.2)	355					<2.40
22		(9.5)	320					(2.50)
23		(9.3)	280					(2.60)

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 41

Rome, Italy (41.8°N, 12.5°E)

February 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.8	300					2.55
01		5.7	300					2.45
02		5.6	<310					2.55
03		5.4	300					2.50
04		5.3	300					2.55
05		5.1	290					2.55
06		4.6	270					2.70
07		5.8	260			---	1.9	2.75
08		10.2	240		120	2.5		3.10
09		12.8	230		120	3.1		2.95
10		14.0	230		120	3.4		2.90
11		14.2	230		120	3.6		2.80
12		14.2	230		110	3.7		2.85
13		13.7	230		110	3.7		2.80
14		13.6	240		110	3.6		2.75
15		13.4	240		110	3.4		2.75
16		13.0	240		110	2.9		2.80
17		12.6	240		120	2.2		2.85
18		12.0	240					2.80
19		9.6	230					2.80
20		7.9	240					2.75
21		6.9	250					2.65
22		6.4	260					2.55
23		5.8	290					2.50

Time: 15.0°E.

Sweep: 1.4 Mc to 15.0 Mc in 5 minutes, automatic operation.

Table 42

Ibadan, Nigeria (7.4°N, 3.9°E)

February 1958

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		(9.9)	255					(2.65)
01		(10.6)	245				0.9	(2.80)
02		>10.2	240				1.6	3.00
03		(9.7)	220				1.3	3.20
04		(8.4)	215					3.40
05		5.5	210					3.30
06		6.0	250			---	<140	2.95
07		(10.2)	245			---	110	2.70
08		>11.7	235			---	105	3.40
09		12.4	220			---	105	3.85
10		12.1	210			---	105	4.10
11		12.3	205			---	105	(4.25)
12		12.3	205			---	105	4.30
13		(12.6)	205			---	105	4.25
14		12.8	210			---	105	(4.10)
15		(13.4)	225			---	105	3.80
16		>13.4	240			---	110	3.40
17		(13.0)	260			---	110	2.70
18		>11.4	300			---	<155	1.65
19		(10.6)	405					2.9
20		(10.2)	375					(2.00)
21		>9.0	340					(2.15)
22		(8.9)	305					<2.25
23		(9.3)	280					(2.30)

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 43

Concepcion, Chile (36.6°S, 73.0°W)

January 1950

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.8	365				3.1	2.35
01		9.4	345				3.7	2.40
02		9.1	355				3.7	2.35
03		8.8	360				3.3	2.20
04		8.5	390				3.1	2.22
05		9.0	295				3.7	2.30
06		9.6	260		116	(2.80)	4.6	2.45
07		10.4	250		111	(3.30)	4.9	2.25
08	---	11.05	240	---	111		3.85	5.0
09	500	11.6	235	6.5	111	4.15	5.0	2.30
10	465	12.1	225	6.8	111	4.30	4.9	2.35
11	460	12.2	220	6.7	111	(4.45)		2.35
12	465	12.45	225	6.6	111	4.50		2.35
13	450	12.45	(230)	6.5	113	4.50	4.9	2.35
14	440	11.9	235	6.4	111	4.40	4.6	2.40
15	450	11.25	(245)	6.1	111	4.12	5.4	2.40
16	440	10.5	(250)	---	111	3.82	7.0	2.40
17	(440)	9.7	<265	---	112	3.40	5.3	2.35
18	---	9.75	<295	---	117	---	5.0	2.35
19	---	9.75	(335)	---	---	---	4.5	2.25
20	---	9.9	<420	---	---	---	5.5	2.20
21	---	10.3	420	---	---	---	4.4	2.25
22	---	9.95	405	---	---	---	4.5	2.30
23	---	10.2	385	---	---	---	4.5	2.30

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 45

Pole Station (90.0°S)

October 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	(500)	(7.35)	<300	---	(129)	---	---	(2.50)
01	---	(7.0)	<300	---	126	---	---	(2.45)
02	---	(7.3)	(300)	---	128	---	---	(2.40)
03	(505)	(7.4)	<315	---	131	---	---	(2.35)
04	(495)	(7.4)	300	---	<145	---	---	(2.30)
05	400	(7.2)	(310)	---	(137)	---	---	(2.28)
06	515	(6.9)	<325	---	<131	---	---	(2.20)
07	500	(6.6)	320	(4.0)	124	---	---	(2.30)
08	520	(5.85)	(330)	(3.4)	119	---	---	(2.20)
09	540	(6.0)	<330	(4.0)	122	---	---	(2.20)
10	(545)	(5.5)	<340	---	118	---	---	(2.30)
11	(610)	(5.4)	<335	---	119	---	---	(2.50)
12	---	(5.5)	<335	---	119	---	2.45	---
13	---	(5.8)	(315)	---	(121)	---	---	(2.60)
14	---	(6.2)	<310	---	---	---	2.60	---
15	---	(7.2)	(300)	---	119	---	2.55	---
16	---	(7.6)	<315	---	117	---	2.60	---
17	---	(7.2)	(300)	---	117	---	(2.55)	---
18	---	(6.8)	(290)	---	122	2.30	(2.65)	---
19	---	(6.3)	300	---	124	---	2.65	---
20	---	(6.75)	290	---	124	---	(2.75)	---
21	---	(6.65)	290	---	---	---	(2.70)	---
22	---	(6.7)	<290	---	139	---	(2.62)	---
23	---	(7.2)	(280)	---	(131)	2.30	(2.50)	---

Time: 0.0°.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 47

Pole Station (90.0°S)

September 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.2)	(285)					(2.70)
01		(6.6)	(290)					(2.62)
02		(6.6)	(300)					(2.65)
03		(6.9)	<330					(2.65)
04		(7.3)	(320)					(2.50)
05		(6.45)	<325					(2.55)
06		(7.4)	(330)					(2.50)
07		(7.4)	<320		---	---		(2.45)
08		(6.0)	(310)					(2.40)
09		(6.3)	(325)					(2.48)
10		(5.8)	(345)					(2.52)
11		(5.6)	(340)					(2.60)
12		(5.3)	<355					(2.70)
13		(5.9)	310					(2.80)
14		(5.7)	<310					(2.80)
15		(7.05)	<280		---	---		(2.85)
16		(8.6)	275		---	---		(2.90)
17		(7.0)	295		---	---		(2.75)
18		(5.75)	290		---	---		(2.68)
19		(5.05)	320		---	---		(2.65)
20		(5.25)	(295)		---	---		(2.75)
21		(5.45)	285		---	---		(2.80)
22		(5.4)	290		---	---		(2.70)
23		(5.75)	<205		---	---		(2.80)

Time: 0.0°.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 44

Concepcion, Chile (36.6°S, 73.0°W)

December 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.45	385				5.0	2.40
01		>9.25	360				4.8	2.40
02		8.8	370				4.4	2.35
03		8.55	375				3.8	2.25
04		8.3	395				4.0	2.15
05		9.0	290		(125)	(2.30)	4.2	2.32
06		9.2	260		115	3.10	5.2	2.45
07		>9.7	245		111	(3.60)	5.1	2.35
08	(500)	10.2	250	---	110	(3.95)	5.4	2.30
09	495	10.55	(250)	6.6	109	(4.20)	6.4	2.40
10	470	11.1	240	6.5	109	(4.28)	5.4	2.35
11	475	11.1	235	6.6	111	4.35	5.0	2.35
12	475	11.0	(245)	6.4	111	(4.50)	5.3	2.35
13	480	10.95	245	6.4	113	(4.50)	5.1	2.35
14	465	10.8	(250)	6.2	113	(4.30)	5.2	2.35
15	460	10.5	(250)	6.0	111	(4.00)	5.7	2.40
16	460	10.4	(260)	---	113	(3.85)	5.8	2.42
17	(440)	>9.05	(270)	---	115	3.45	6.1	2.40
18	---	9.2	(300)	---	121	(2.60)	5.8	2.40
19		9.1	<365	---	---	---	5.1	2.25
20		9.1	<420	---	---	---	6.1	2.25
21		9.1	420	---	---	---	5.0	2.25
22		9.1	420	---	---	---	5.5	2.28
23		9.4	400	---	---	---	4.8	2.35

Time: 75.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 46

San Francisco, California (37.4°N, 122.2°W)

September 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.0	320					2.50
01		5.0	315					2.55
02		4.9	310					2.60
03		4.8	310					2.60
04		4.7	305					2.60
05		4.5	315					2.50
06	---	5.5	200	---	109	2.00	2.4	2.80
07	---	7.0	250	---	109	2.75		2.90
08	(935)	7.95	240	4.4	107	3.30		2.92
09	750	9.3	225	4.8	107	3.55		2.85
10	6	9.0	220	4.9	105	3.90		2.75
11	430	9.5	225	5.2	107	4.00		2.65
12	585	10.25	225	5.0	105	4.05		2.65
13	440	10.05	230	5.1	103	4.00		2.65
14	450	9.9	230	5.2	103	3.98		2.65
15	(615)	10.05	235	4.7	105	3.62		2.70
16	(590)	9.5	240	4.6	105	3.30		2.72
17	---	9.3	250	---	111	2.80		2.82
18		>8.9	250	---	(121)	1.98	2.0	2.85
19		7.7	235					2.85
20		6.6	250					2.75
21		6.2	270					2.70
22		5.6	275					2.70
23		5.2	295					2.65

Time: 120.0°W.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 48

Pole Station (90.0°S)

August 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(3.9)	260				2.0	(2.80)
01		(5.0)	260					(2.65)
02		(5.2)	265					(2.65)
03		(5.5)	270					---
04		(5.5)	270					(2.60)
05		(4.65)	290					(2.40)
06		(5.2)	300					(2.30)
07		(5.0)	(330)					(2.40)
08		(4.5)	300					---
09		(4.85)	335		---	---		(2.45)
10		(4.75)	350		---	---	2.3	(2.60)
11		(4.85)	310		---	---	2.6	(2.70)
12		(4.5)	300		---	---	2.5	(2.70)
13		(4.2)	315		---	---	2.6	(2.80)
14		(4.6)	305					(2.72)
15		(4.5)	280					(2.90)
16		(4.8)	285					(2.95)
17		(3.85)	280					---
18		(3.6)	280				2.5	(2.75)
19		(3.8)	285				2.3	---
20		(3.75)	270				2.1	---
21		(3.9)	260				2.0	---
22		(3.9)	265				2.0	---
23		(3.75)	265					---

Time: 0.0°.

Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.



Table 49

Ibadan, Nigeria (7.4°N, 3.9°E)								
June 1957								
Time	h <sup>+</sup> F2	foF2	h <sup>+</sup> F	foF1	h <sup>+</sup> E	foE	foEs	(M3000)F2
00		(5.2)	440					(2.28)
01		(5.2)	415					(2.40)
02		(5.2)	365					(2.55)
03		(5.3)	315					(2.65)
04		(5.2)	250					(2.90)
05		(4.5)	250					(2.88)
06		8.5	265		110	2.35	2.5	2.90
07		11.4	250		110	3.20	4.2	2.90
08		12.9	240		105	3.70	7.1	2.80
09		13.5	230		105	4.00	7.4	2.60
10		13.6	220		105	4.20	7.4	2.35
11		13.3	215	(5.5)	105	4.30	7.4	2.10
12		12.3	210	(5.4)	105	4.35	7.4	2.05
13		11.0	210	(5.3)	105	4.30	7.5	2.05
14		11.5	215	(5.0)	105	4.15	7.6	2.10
15		11.5	220	(5.0)	110	3.05	7.4	2.10
16		11.4	235		110	3.40	6.6	2.10
17		11.4	260		115	2.00	5.4	2.15
18		>10.9	295		110	1.80		<2.15
19		9.6	305					2.00
20		(7.3)	435					<2.05
21		(6.4)	400					(2.05)
22		(5.7)	490					(2.18)
23		(5.4)	400					(2.08)

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 50

Macquarie I. (54.5°S, 159.0°E)								
June 1957								
Time	h <sup>+</sup> F2	foF2	h <sup>+</sup> F	foF1	h <sup>+</sup> E	foE	foEs	(M3000)F2
00		---	300				2.9	---
01		>3.5	300				2.8	---
02		(4.9)	290				2.2	(2.6)
03		(5.0)	270				1.7	(2.6)
04		(4.0)	250				2.2	(2.7)
05		(4.3)	250					(2.7)
06		3.4	250					(2.7)
07		4.8	250					(2.75)
08		7.0	230			1.9		2.9
09		9.0	230			2.4		3.0
10		10.7	230			2.7		2.95
11		11.5	235			2.6		(2.9)
12		0	240			2.8		---
13		0	230			2.6		---
14		0	230			2.4		---
15		0	235			---	1.9	---
16		>7.8	220			---		---
17		(8.5)	245			---	1.6	---
18		---	(240)			---	2.8	---
19		(6.5)	250			---	2.1	---
20		---	265			---	2.3	---
21		(5.0)	(260)			---	4.1	(2.65)
22		(5.0)	290			---	4.8	---
23		---	(285)			---	3.2	---

Time: 150.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 51\*

Ibadan, Nigeria (7.4°N, 3.9°E)								
May 1957								
Time	h <sup>+</sup> F2	foF2	h <sup>+</sup> F	foF1	h <sup>+</sup> E	foE	fEs	(M3000)F2
00		<7.3	410					0.9
01		<6.9	385					---
02		<6.9	350					---
03		<7.1	295					1.0
04		(6.0)	250					(3.25)
05		4.9	235				6.1	3.30
06		8.9	255		120	2.30	3.9	3.10
07		11.9	240		115	3.15	4.7	3.10
08		13.1	230		110	3.60	7.5	2.90
09		14.2	225		110	3.95	7.5	2.55
10		14.4	215		110	4.15	13.8	2.35
11		14.2	210		110	4.25	13.8	2.10
12		13.2	205		110	4.25	13.8	2.05
13		12.4	200		110	4.20	13.7	2.00
14		12.1	205		110	4.00	13.8	2.00
15		11.9	210		110	3.70	11.0	2.05
16		12.4	230		110	3.35	10.8	2.00
17		12.2	260		115	2.65	8.5	2.00
18		11.9	310		---	1.75	6.2	2.00
19		>10.0	400					(1.90)
20		8.7	440					---
21		<7.6	430					---
22		(7.7)	420					---
23		<7.5	430					---

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

\*Average values except foF2 and fEs, which are median values.

Table 52\*

Ibadan, Nigeria (7.4°N, 3.9°E)								
April 1957								
Time	h <sup>+</sup> F2	foF2	h <sup>+</sup> F	foF1	h <sup>+</sup> E	foE	fEs	(M3000)F2
00		8.1	330					---
01		<8.0	300					---
02		8.0	290				4.0	---
03		7.9	265				5.2	2.95
04		7.6	245				1.5	3.30
05		6.4	230				7.0	3.30
06		>9.0	255		135	2.18	6.8	3.15
07		12.2	240		120	3.10	5.7	3.15
08		13.8	230		115	3.50	9.2	2.95
09		14.8	220		110	3.94	13.8	2.50
10		14.9	215		105	4.16	15.0	2.20
11		14.3	210		105	4.28	14.7	2.20
12		13.4	210		105	4.30	15.3	2.15
13		13.3	205		105	4.20	15.2	2.10
14		13.0	205		105	3.98	14.6	2.00
15		12.8	215		110	3.70	13.8	2.00
16		12.8	235		110	3.22	13.7	2.00
17		>12.4	265		115	2.62	10.7	1.95
18		(11.5)	315		---	1.60	(7.0)	---
19		>9.4	440					---
20		(8.2)	460					---
21		<9.2	445					---
22		8.4	405					---
23		<8.6	360					---

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

\*Average values except foF2 and fEs, which are median values.

Table 53

Canberra, Australia (35.3°S, 149.0°E)								
April 1957								
Time	h <sup>+</sup> F2	foF2	h <sup>+</sup> F	foF1	h <sup>+</sup> E	foE	foEs	(M3000)F2
00		(7.0)	270				2.2	
01		(6.9)	270					
02		>6.5	270				1.8	
03		>6.5	270					
04		(6.4)	250					
05		(5.8)	250				1.8	
06		>6.0	250			<1.50		
07		>8.0	220			2.30		
08		>9.0	210			2.00	3.0	
09		>10.7	210			3.25	3.5	
10		>11.0	200			3.55	3.7	
11		---	200			3.70	4.0	
12		---	200			(3.70)	4.0	
13		---	210			(3.70)	3.0	
14		---	210			3.70		
15		---	210			3.50	3.5	
16		>10.2	220			3.05	3.2	
17		>10.0	220			2.35	2.8	
18		>9.5	220			<1.60	2.5	
19		>9.0	220				2.1	
20		>8.5	240				2.7	
21		(7.8)	240					
22		(7.5)	250					
23		>7.0	250					

Time: 150.0°E.

Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 54\*

Campbell I. (52.5°S, 169.2°E)								
April 1957								
Time	h <sup>+</sup> F2	foF2	h <sup>+</sup> F1	foF1	h <sup>+</sup> E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05		320	5.8					(2.75)
06		280	6.0			1.6		2.8
07		260	7.2	---	120	2.2		2.9
08		270	7.9	240	4.4	120	2.7	2.9
09		290	9.0	240	4.0	110	2.9	2.8
10		300	9.9	230	4.0	110	3.1	2.9
11		280	10.6	230	5.0	110	3.2	2.8
12		300	11.6	240	5.1	110	3.2	2.8
13		290	11.5	240	5.2	110	3.2	2.8
14		290	11.5	240	4.9	110	3.1	2.8
15		290	11.0	240	5.0	110	2.8	2.7
16		270	10.2	240	---	120	2.5	2.0
17		250	9.7	250	---	---	1.9	2.8
18		260	8.0	---	---	---	1.8	2.7
19		280	8.2					2.6
20		300	7.6				1.7	2.6
21		340	6.9				3.9	2.6
22		350	6.8				4.2	2.6
23		320	6.7				4.5	2.5

Time: 165.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.

\*Observations taken on a 19-hour working schedule.

Table 55

Macquarie I. (54.5°S, 159.0°E) April 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00	---	---	(320)				4.0	---
01	---	---	(320)				4.5	---
02	---	(5.1)	(300)				4.5	---
03	---	(5.1)	300				3.7	(2.6)
04	---	(5.5)	290			---		(2.7)
05	---	(4.4)	300			---		(2.7)
06	---	(5.5)	260			1.7		(2.9)
07	---	7.6	250			2.3		(2.8)
08	---	8.6	250			2.6		(2.7)
09	---	10.1	250			3.0		(2.8)
10	---	11.0	250	---		3.1		(2.7)
11	---	11.0	240	---		3.2		(2.65)
12	---	12.0	240	---		3.2		(2.7)
13	---	0	240			3.1		(2.7)
14	---	0	240			2.9		---
15	---	(10.5)	250			2.6		---
16	---	8.9	250			2.2		(2.7)
17	---	>7.7	260			1.6		---
18	---	>7.6	260			---	3.3	---
19	---	(7.6)	260			---	3.4	---
20	---	---	(250)			---	4.7	---
21	---	---	(280)			---	4.2	---
22	---	---	(330)			---	4.0	---
23	---	---	(300)			---	5.0	---

Time: 150.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 56\*

Ibadan, Nigeria (7.4°N, 3.9°E) March 1957								
Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		9.5	275					---
01		9.9	265					2.70
02		<10.1	255					2.90
03		<9.8	245					3.30
04		7.8	235					3.20
05		>5.8	225				4.3	3.30
06		7.2	255		120	1.85	5.3	3.25
07		11.0	245		120	2.90	5.8	2.95
08		13.0	235		115	3.45	10.8	2.70
09		14.1	225		115	3.85	13.8	2.35
10		13.9	215		115	4.10	13.9	2.15
11		13.3	210		115	4.20	14.0	2.10
12		13.0	210		(115)	4.20	13.9	2.10
13		12.7	205		110	4.15	13.9	2.05
14		12.7	205		110	4.00	13.6	2.00
15		12.6	210		115	3.55	13.4	1.95
16		12.6	235		115	3.30	13.2	1.95
17		12.0	265		120	2.65	10.5	1.95
18		>11.2	315		---	1.55	(5.2)	1.85
19		(8.8)	465					1.80
20		<8.9	460					---
21		(9.4)	395					---
22		<9.9	340					---
23		<9.6	300					---

Time: 0.0°.

Sweep: 0.67 Mc to 25.0 Mc in 5 minutes, automatic operation.

\*Average values except foF2 and fEs, which are median values.

Table 57

Budapest, Hungary (47.4°N, 19.2°E) December 1956								
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	4.2						
01	---	---						
02	---	---						
03	---	---						
04	285	3.7						
05	---	---						
06	245	5.4	---	---				
07	---	---						
08	225	10.8	100	3.0	125	2.7		
09	230	11.6	---	---	120	3.0		
10	230	11.6	---	---	120	3.1		
11	230	11.5	---	---	120	3.1		
12	235	11.6	---	---	120	3.1		
13	240	11.6	---	---	125	2.0		
14	230	11.5	---	---	120	2.4		
15	230	10.0			---	---	2.4	
16	225	9.0						
17	---	---						
18	235	6.6						
19	---	---						
20	300	4.2						
21	---	---						
22	---	---						
23	---	---						

Time: 0.0°.

Sweep: 1.0 Mc to 20.0 Mc in 35 seconds.

Table 58

Oelhi, India (28.6°N, 77.1°E) December 1956								
Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	360	7.3						2.80
01	330	7.0						2.95
02	320	6.6						3.00
03								
04	320	4.6						3.00
05	320	3.9						3.00
06	360	4.7						2.80
07	320	9.4						3.00
08	300	13.1						3.10
09	300	14.0						3.10
10	320	13.5						3.00
11	360	13.5						2.80
12	360	13.9						2.80
13	400	13.6						2.60
14	400	13.8						2.60
15	380	13.9						2.70
16	360	13.8						2.80
17	340	13.4						2.90
18	360	12.8						2.80
19	340	12.5						2.90
20	320	12.3						3.00
21	320	10.5						3.00
22	320	8.9						3.00
23	360	8.0						2.80

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

\*Height at 0.03 foF2.

Table 59

Ahmedabad, India (23.0°N, 72.6°E) December 1956								
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	235	12.7					3.0	2.75
01	250	12.0					2.8	2.85
02	230	10.8					3.2	3.05
03	230	0.6					3.2	3.00
04	230	6.8					3.2	2.90
05	240	5.4					3.2	3.15
06	255	4.8					3.2	2.90
07	270	8.7					3.2	2.90
08	250	13.5	250	---	110	2.80		2.95
09	250	15.1	240	5.0	110	3.40		2.95
10	250	14.6	230	5.4	107	3.70		2.80
11	305	14.4	225	5.2	107	3.90		2.70
12	340	14.5	230	---	105	4.00		2.60
13	360	14.6	230	---	105	3.90		2.55
14	370	15.2	235	---	107	3.00		2.55
15	350	15.3	240	5.6	110	3.60		2.55
16	320	15.5	250	5.0	115	3.00	3.2	2.55
17	265	15.8	---	---	---	2.10	3.2	2.60
18	250	16.1					>3.2	2.65
19	280	16.4					3.2	2.60
20	270	18.0					3.2	2.65
21	240	17.8					<3.0	<2.80
22	225	16.8					3.2	2.85
23	225	14.8					3.0	2.00

Time: 75.0°E.

Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 60

Calcutta, India (22.9°N, 88.5°E) December 1956*								
Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	(8.1)						(3.15)
01	250	(7.8)						(3.15)
02	240	7.0						3.3
03	230	6.2						3.3
04	230	5.2					1.8	3.3
05	250	3.5						3.2
06	260	5.4						3.2
07	260	7.6			110	2.4		3.2
08	270	8.8	240	5.1	110	3.0		3.2
09	200	10.5	220	5.5	105	3.4		3.2
10	300	11.7	220	5.7	100	3.6		3.1
11	310	12.5	220	5.9	100	3.0		3.0
12	330	0	220	6.0	100	3.0		(3.0)
13	330	0	210	6.0	100	3.8		
14	340	0	230	5.9	100	3.6		
15	330	0	230	5.8	100	3.4		---
16	300	12.5	220	5.7	100	3.0		(3.0)
17	270	12.0	230	5.4	110	2.5	3.2	3.1
18	250	11.5					3.0	3.2
19	270	11.2					2.5	3.2
20	260	10.5						3.3
21	240	10.2						3.3
22	230	9.4						3.3
23	240	(8.5)						(3.2)

Time: 90.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

\*Data reported from December 15 through 31 only.



Table 61

Bombay, India (19.0°N, 73.0°E) December 1956							
Time	*	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00							
01							
02							
03							
04							
05							
06	330	7.2					2.95
07	360	8.0					2.80
08:30	420	9.7					2.55
09	420	10.6					2.55
10	450	11.3					2.45
11	490	12.1					2.30
12	510	12.2					2.25
13	540	12.5					2.15
14	540	12.6					2.15
15	540	12.4					2.15
16	510	11.8					2.25
17	400	11.0					2.30
18	450	10.4					2.45
19	450	9.0					2.45
20	(300)	(9.0)					(2.70)
21	420	9.0					2.55
22	300	8.6					2.70
23							

Time: 75.0°E.

Sweep: 1.5 Mc to 10.0 Mc in 5 minutes, manual operation.

\*Height at 0.03 foF2.

Table 62

Madras, India (13.0°N, 00.2°E) December 1956							
Time	*	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00	(300)	10.7					(2.70)
01	(360)	>10.0					(2.00)
02	360	9.4					2.80
03	320	8.5					3.00
04	320	>7.5					3.00
05	290	6.8					3.20
06	320	8.2					3.00
07	360	10.8					2.00
08	400	12.4					2.60
09	430	>13.7					2.50
10	400	>13.9					2.30
11	500	13.9					2.25
12	520	13.0					2.20
13	540	13.6					2.15
14	560	13.3					2.10
15	560	13.0					2.10
16	560	>12.5					2.10
17	540	12.2					2.15
18	520	11.7					2.20
19	560	>11.6					2.10
20	550	11.4					2.10
21	(560)	>10.3					(2.20)
22	(420)	>10.0					(2.55)
23	(400)	10.5					(2.60)

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

\*Height at 0.03 foF2.

Table 63

Tiruchy, India (10.0°N, 70.8°E) December 1956							
Time	*	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00							
01							
02							
03							
04							
05							
06	360	8.4					2.80
07	360	10.5					2.80
08	400	11.6					2.60
09	400	12.0					2.30
10	480	12.2					2.30
11	520	12.4					2.20
12	560	12.4					2.10
13	560	12.4					2.10
14	500	12.3					2.10
15	560	11.9					2.10
16	560	11.5					2.10
17	540	10.7					2.15
18	560	9.8					2.10
19	(560)	(9.0)					(2.10)
20	---	---					----
21	---	---					----
21:30							
23							

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

\*Height at 0.83 foF2.

Table 64

Kodaikanal, India (10.2°N, 77.5°E) December 1956							
Time	*	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00	300	9.1					2.40
01	290	9.4					2.50
02	280	9.0					2.60
03	260	8.7					2.70
04	240	8.0					2.90
05	240	6.9					3.00
06	290	7.4					2.80
07	260	10.8	---	---	115	2.8	2.65
08	---	12.2	240	---	110	3.3	2.50
09	---	13.0	235	---	110	3.5	2.40
10	---	13.2	230	---	105	---	10.9
11	---	13.2	230	---	110	---	11.6
12	(490)	12.9	220	---	110	---	11.7
13	(500)	12.6	220	---	110	---	11.0
14	---	12.2	220	---	110	---	11.8
15	---	12.0	240	---	115	---	12.0
16	---	11.7	260	---	120	3.2	11.4
17	295	11.0	---	---	---	---	8.8
18	370	10.5					<2.05
19	460	>9.2					<2.00
20	450	9.2					2.00
21	420	8.6					2.10
22	385	9.0					2.20
23	320	9.0					2.30

Time: 75.0°E.

Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 65

Delhi, India (20.6°N, 77.1°E) November 1956							
Time	*	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00	320	7.6					3.00
01	320	6.9					3.00
02	320	6.0					3.00
03							
04	320	4.8					3.00
05	320	4.7					3.00
06	320	6.9					3.00
07	280	11.2					3.25
08	200	13.6					3.10
09	300	14.4					3.00
10	320	14.7					2.00
11	360	>14.7					2.70
12	380	>15.0					2.80
13	360	15.1					2.65
14	390	>15.0					2.60
15	400	>15.0					2.80
16	360	14.9					2.80
17	360	14.7					2.90
18	340	14.2					3.00
19	320	>13.4					3.00
20	320	13.1					3.00
21	320	11.5					3.00
22	320	9.4					3.00
23	320	8.5					3.00

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

\*Height at 0.83 foF2.

Table 66

Ahmedabad, India (23.0°N, 72.6°E) November 1956							
Time	*	foF2	h'F1	foF1	h'E	foE	fEs (M3000)F2
00	250	12.4					3.2
01	250	10.9					3.2
02	245	9.6					3.2
03	225	8.2					3.2
04	230	5.7					3.2
05	250	4.6					3.2
06	270	6.3					3.2
07	255	10.7	---	---	120	2.10	3.2
08	250	13.8	240	5.0	110	2.90	3.05
09	250	14.8	235	5.2	110	3.50	<2.90
10	250	14.9	230	5.4	107	3.00	2.80
11	330	15.3	230	5.4	107	4.00	<2.70
12	350	16.0	230	5.4	106	4.00	2.60
13	350	16.2	235	5.6	107	4.00	2.55
14	360	16.5	235	5.4	107	3.80	2.55
15	360	16.2	240	5.6	110	3.50	2.55
16	325	17.0	250	5.2	115	3.00	2.55
17	260	17.2	---	---	---	2.00	3.2
18	255	16.4					3.2
19	290	17.1					3.0
20	275	18.2					3.2
21	235	17.4					2.80
22	225	>15.2					2.9
23	230	13.7					3.2

Time: 75.0°E.

Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 67

Calcutta, India (22.9°N, 88.5°E)

November 1956

Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	250	8.0						3.0
01	250	7.5						3.1
02	250	6.5						3.1
03	250	5.8						3.2
04	250	5.1						3.2
05	260	4.4						3.1
06	275	7.4			110	2.2		3.05
07	280	9.6			105	2.7		3.1
08	270	10.7	240	5.0	100	3.0		3.1
09	270	11.4	220	5.2	100	3.2		3.1
10	260	11.5	220	5.5	100	3.4		3.1
11	280	12.0	210	5.5	100	3.5		3.0
12	290	12.5	210	5.6	100	3.6		2.9
13	300	D	210	5.6	100	3.6		(2.85)
14	310	D	230	5.5	100	3.5		(2.8)
15	300	D	230	5.4	100	3.3		(2.9)
16	280	12.5	230	5.4	100	3.0		3.0
17	270	11.5	240	5.0	100	2.6	3.2	3.0
18	250	11.0					2.1	3.1
19	250	10.2						3.2
20	240	9.0						3.2
21	240	9.1						3.2
22	240	8.6						3.2
23	250	8.0						3.1

Time: 90.0°E.

Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 68

Bombay, India (19.0°N, 73.0°E)

November 1956

Time	*	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	270	7.3						3.35
07	300	8.0						3.10
08:30	330	9.6						2.95
09	360	10.0						2.80
10	360	10.8						2.65
11	390	11.4						2.30
12	400	12.1						2.25
13	510	12.7						2.25
14	510	12.5						2.25
15	510	11.6						2.30
16	480	11.2						2.45
17	450	10.6						2.55
18	420	10.0						2.80
19	360	9.1						(2.95)
20	(330)	(9.0)						
21	300	8.7						3.10
22	270	7.1						3.35
23								

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

\*Height at 0.83 foF2.

Table 69

Madras, India (13.0°N, 80.2°E)

November 1956

Time	*	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00	320	10.0						3.00
01	320	>10.0						3.00
02	(320)	>0.8						(3.00)
03	300	7.6						3.10
04	280	6.3						3.25
05	300	6.2						3.10
06	320	9.0						3.00
07	360	10.9						2.80
08	420	11.8						2.60
09	440	12.4						2.50
10	450	12.4						2.45
11	490	12.3						2.30
12	500	12.6						2.25
13	510	12.8						2.20
14	520	13.2						2.20
15	520	>13.2						2.20
16	480	12.6						2.30
17	480	11.9						2.30
18	500	12.7						2.25
19	480	11.9						2.30
20	480	>11.7						2.30
21	480	11.9						2.30
22	400	>11.6						2.60
23	(340)	>10.6						(2.90)

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

\*Height at 0.83 foF2.

Table 70

Tiruchy, India (10.8°N, 78.8°E)

November 1956

Time	*	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	320	9.2						3.00
07	360	11.3						2.80
08	400	12.4						2.60
09	480	12.8						2.30
10	480	13.0						2.30
11	520	13.1						2.20
12	520	12.8						2.20
13	560	12.8						2.10
14	(540)	(13.2)						(2.20)
15	560	12.4						2.10
16	560	12.2						2.10
17	560	11.8						2.10
18	560	11.3						2.10
19	540	10.6						2.20
20	---	---						---
21	(520)	(9.7)						(2.20)
21:30	---	---						---
23								

Time: 75.0°E.

Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.

\*Height at 0.83 foF2.

Table 71\*

Campbell I. (52.5°S, 169.2°E)

February 1956

Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	250	4.9	---	---	120	1.8		3.0
06	250	5.5	250	3.0	110	2.4		3.0
07	280	6.2	230	4.4	110	2.9		3.0
08	300	6.7	230	4.6	105	3.0		2.95
09	320	7.0	230	4.7	110	3.5		2.9
10	340	7.2	220	4.9	100	3.5		2.9
11	320	7.2	220	4.9	105	3.6		2.85
12	340	7.3	210	4.9	105	3.6		2.8
13	340	7.5	220	4.9	105	3.6		2.8
14	340	7.4	220	4.9	100	3.5		2.8
15	330	7.4	240	4.8	100	3.3		2.8
16	300	7.6	240	4.5	105	3.1		2.9
17	300	7.6	250	4.2	110	2.8		2.85
18	280	8.0	250	3.5	120	2.2		2.9
19	260	8.0	---	---	135	1.8		2.8
20	250	7.6					3.5	2.8
21	280	7.0						2.7
22	280	6.1						2.6
23	300	5.5						2.8

Time: 165.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.

\*Observations taken on a 19-hour working schedule.

Table 72\*

Campbell I. (52.5°S, 169.2°E)

December 1955

Time	h°F2	foF2	h°F1	foF1	h°E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05	260	5.5	220	4.0	125	2.5		3.0
06	300	6.0	240	4.2	120	2.8		3.0
07	320	6.6	230	4.6	120	3.1		2.9
08	320	7.0	230	5.0	120	3.3		2.9
09	320	7.1	220	5.0	120	3.4		2.95
10	350	7.4	220	5.0	120	3.5	3.7	2.9
11	370	7.0	220	5.1	120	3.6		2.7
12	360	7.2	220	5.2	120	3.5		2.8
13	350	7.2	230	5.1	120	3.6		2.8
14	350	7.3	230	5.1	120	3.5		2.8
15	340	7.3	230	4.9	120	3.3		2.8
16	340	7.2	230	4.8	120	3.2		2.8
17	320	7.3	240	4.5	125	2.9		2.9
18	300	7.4	240	3.8	130	2.6		2.9
19	290	7.5	280	3.8	130	2.6		2.8
20	280	7.8						2.8
21	280	7.3						2.8
22	280	6.8						2.7
23	300	6.6						2.7

Time: 165.0°E.

Sweep: 1.0 Mc to 15.0 Mc in 5 minutes, manual operation.

\*Observations taken on a 19-hour working schedule.

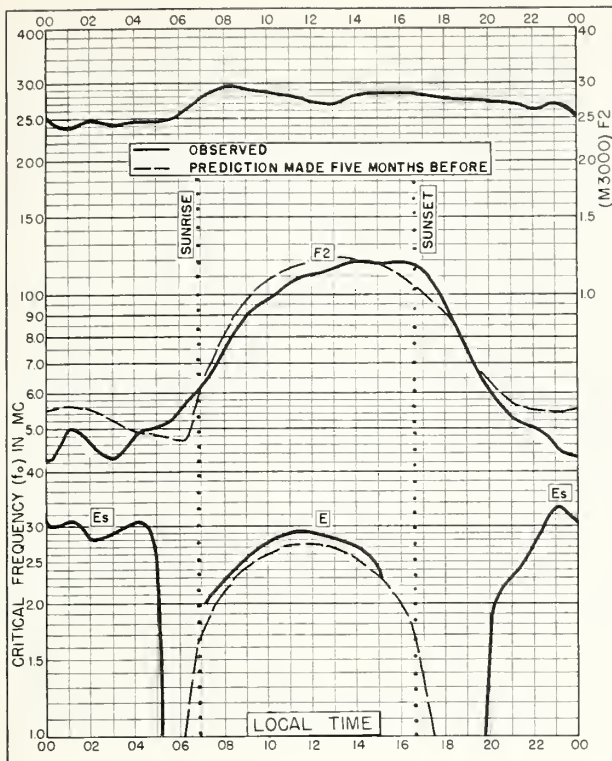


Fig. 1. FAIRBANKS, ALASKA  
64.9°N, 147.8°W  
OCTOBER 1958

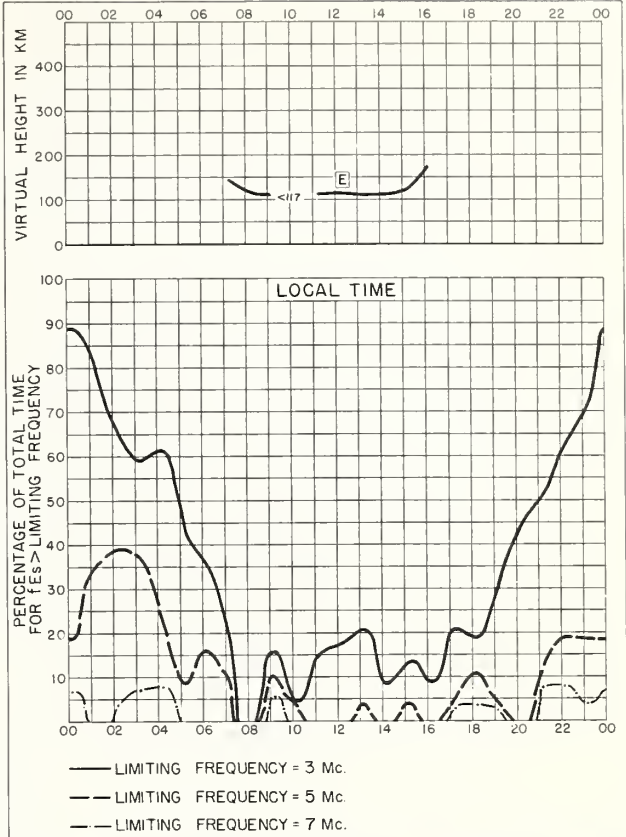


Fig. 2. FAIRBANKS, ALASKA  
OCTOBER 1958

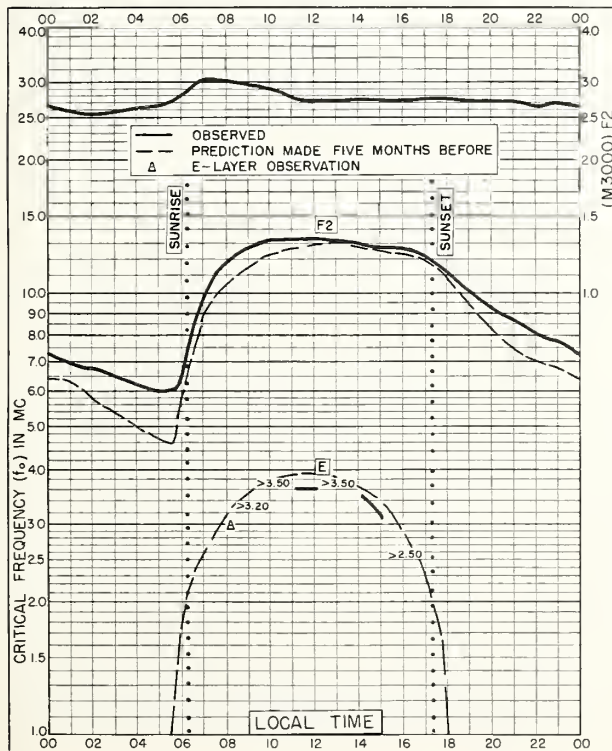


Fig. 3. FT. MONMOUTH, NEW JERSEY  
40.4°N, 74.1°W  
OCTOBER 1958

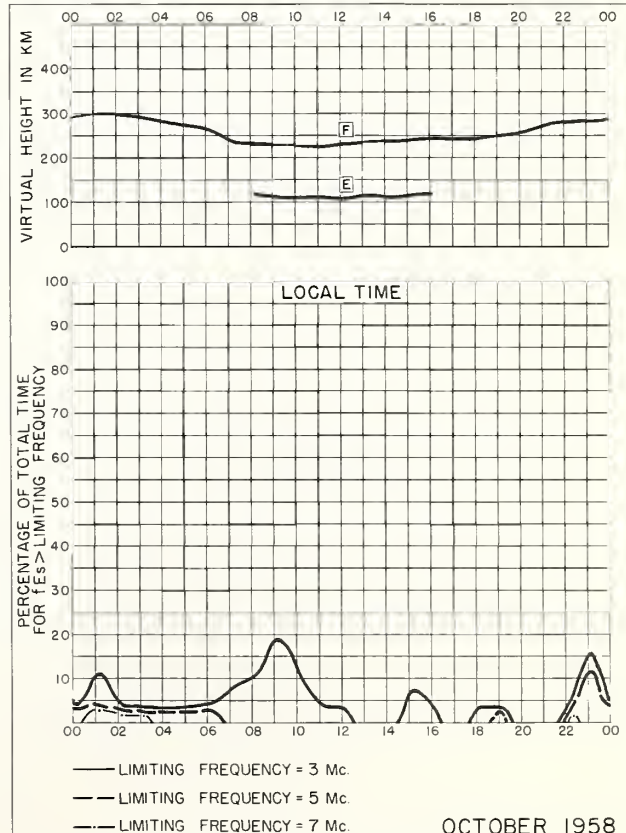


Fig. 4. FT. MONMOUTH, NEW JERSEY  
OCTOBER 1958



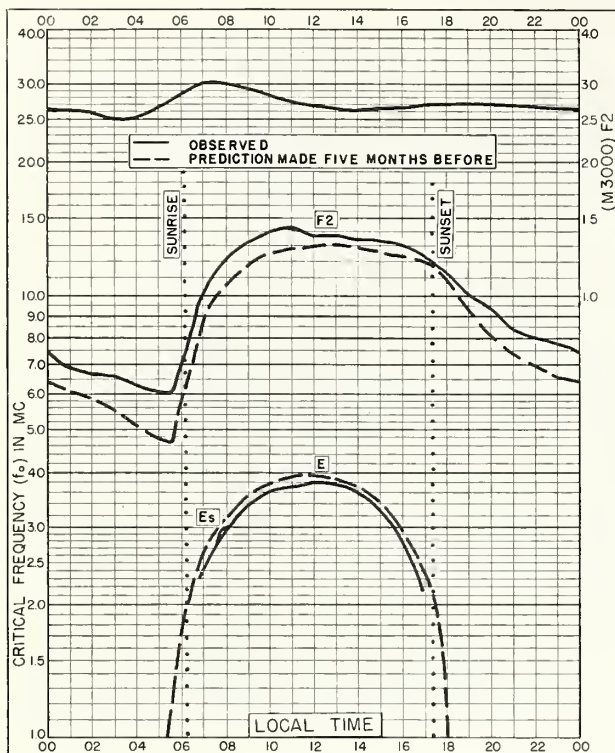


Fig. 5. WASHINGTON, D. C.  
38.7°N, 77.1°W

OCTOBER 1958

NBS 503

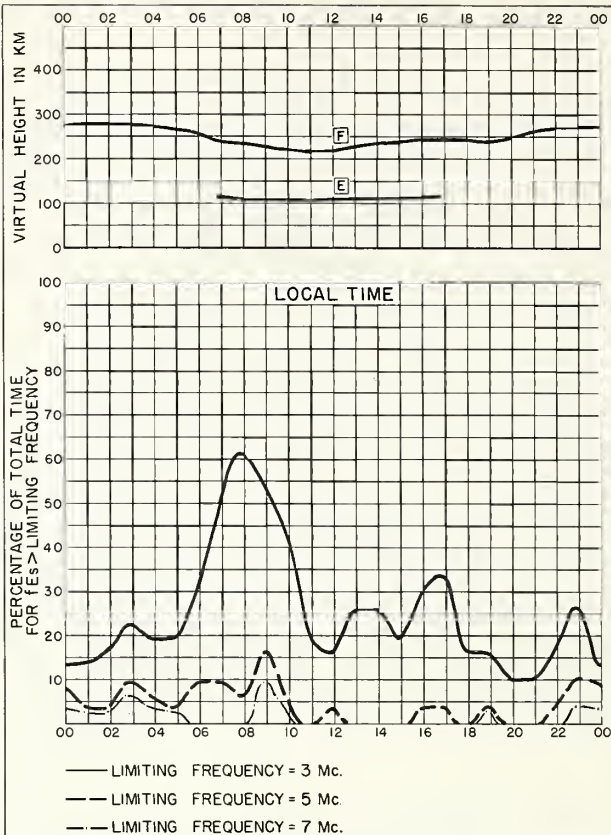


Fig. 6. WASHINGTON, D. C.

OCTOBER 1958

NBS 490

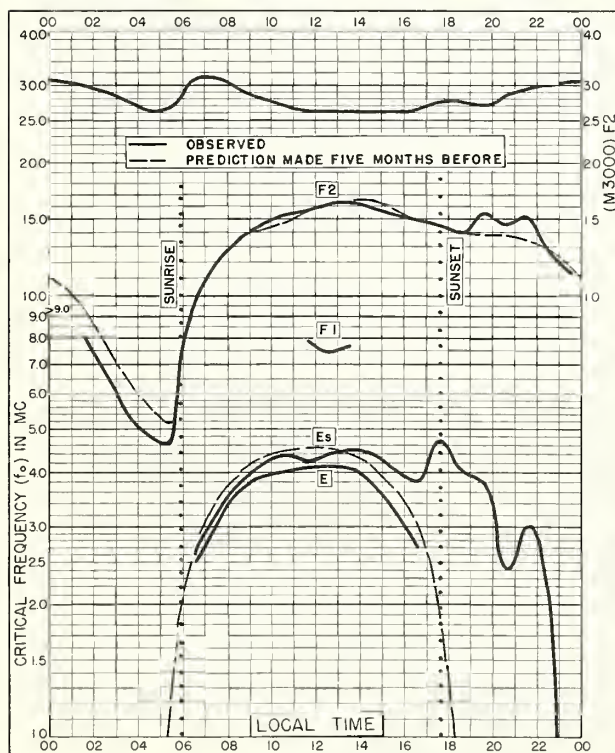


Fig. 7. MAUI, HAWAII  
20.8°N, 156.5°W

OCTOBER 1958

NBS 503

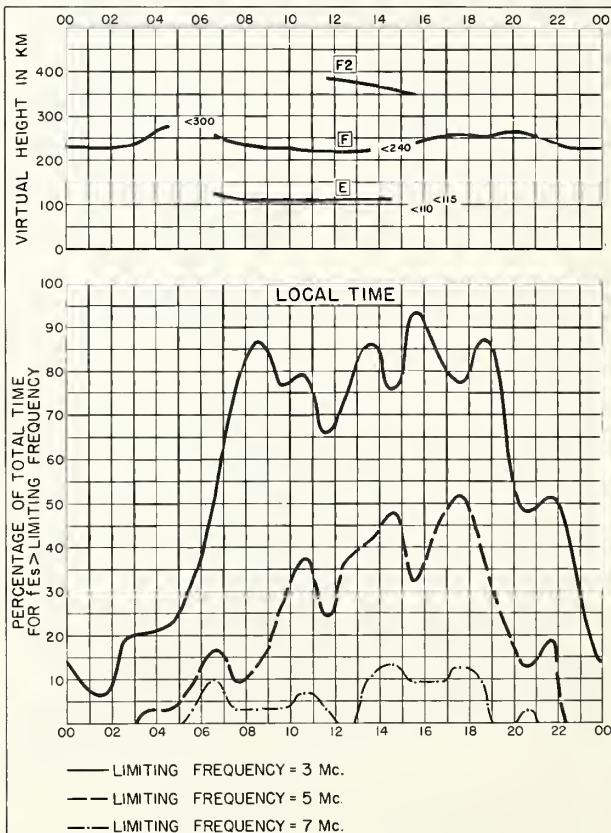


Fig. 8. MAUI, HAWAII

OCTOBER 1958

NBS 490

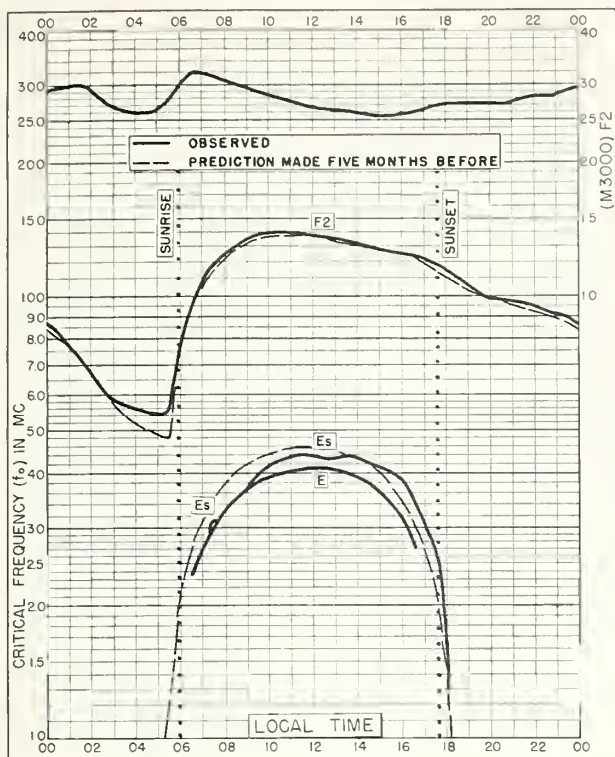


Fig. 9. PUERTO RICO, W. I.  
18.5°N, 67.2°W

OCTOBER 1958

NBS 503

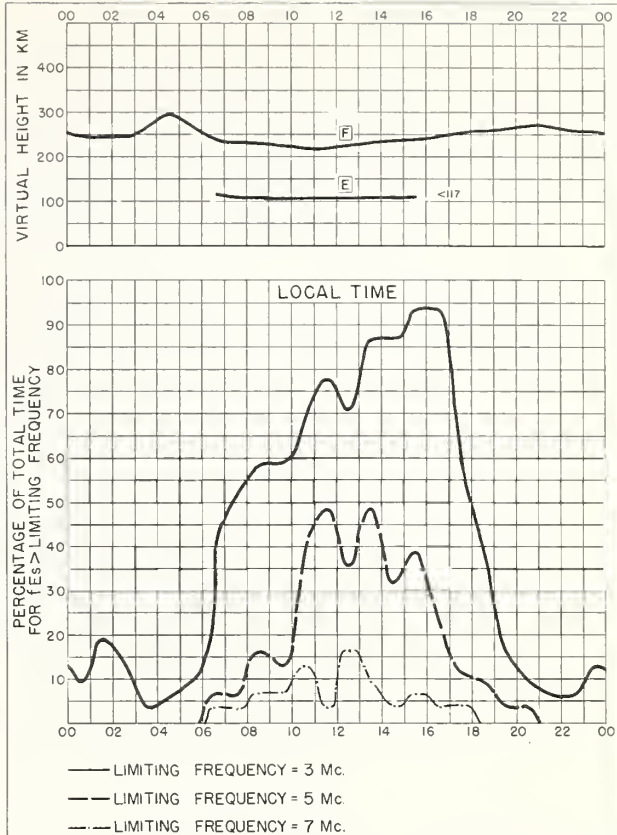


Fig. 10. PUERTO RICO, W. I.

OCTOBER 1958

NBS 490

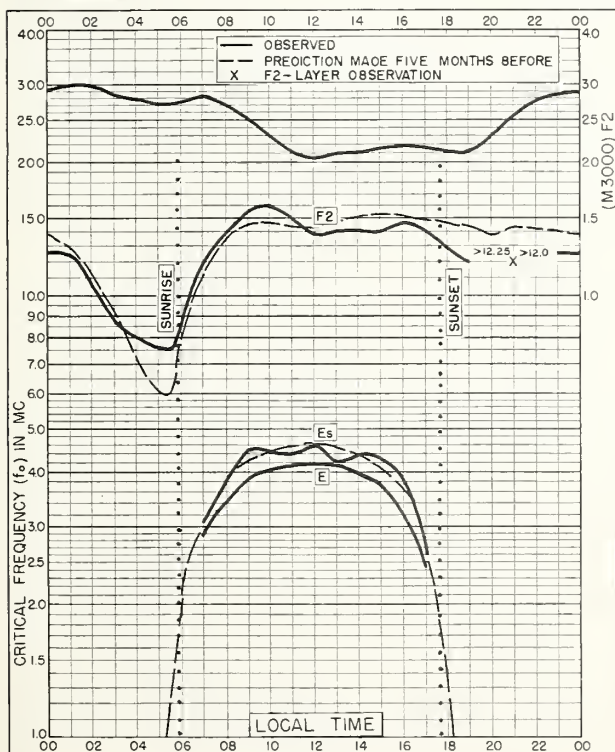


Fig. 11. BAGUIO, P. I.  
16.4°N, 120.6°E

OCTOBER 1958

NBS 503

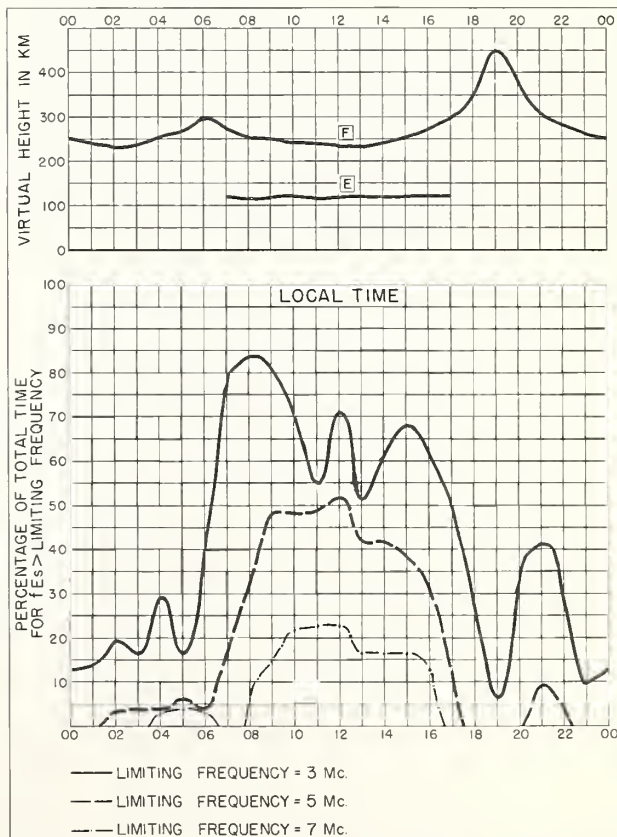


Fig. 12. BAGUIO, P. I.

OCTOBER 1958

NBS 490



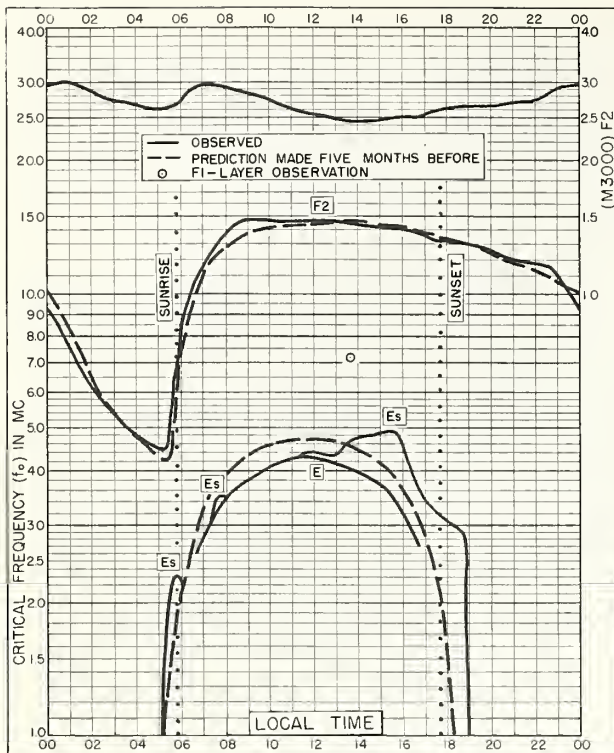
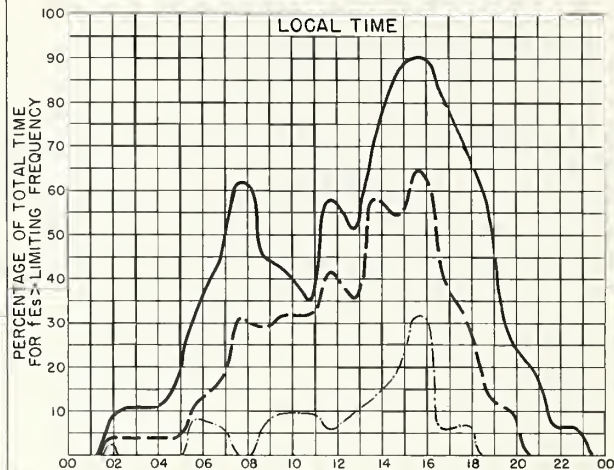
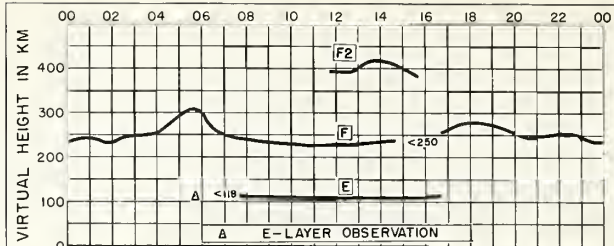


Fig. 13. PANAMA CANAL ZONE  
9.4°N, 79.9°W OCTOBER 1958

Commonwealth Scientific, Calgary, Colo.

NBS 503



— LIMITING FREQUENCY = 3 Mc.  
- - - LIMITING FREQUENCY = 5 Mc.  
- · - · - LIMITING FREQUENCY = 7 Mc.

Fig. 14. PANAMA CANAL ZONE OCTOBER 1958

Commonwealth Scientific, Calgary, Colo.

NBS 490

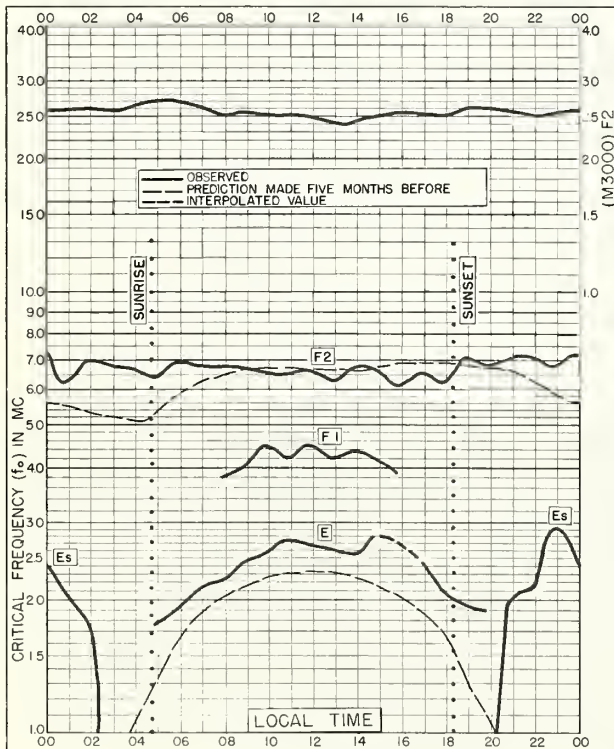
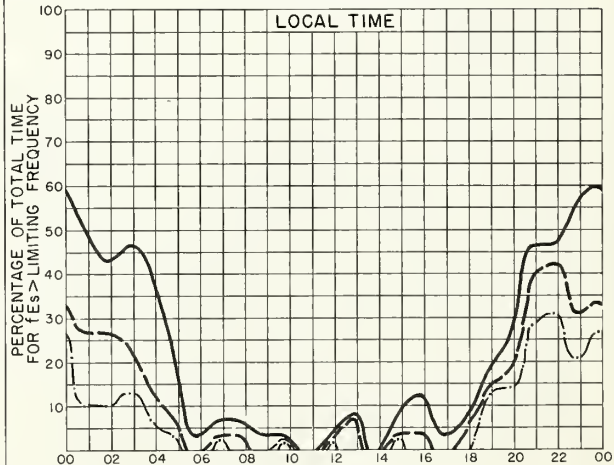
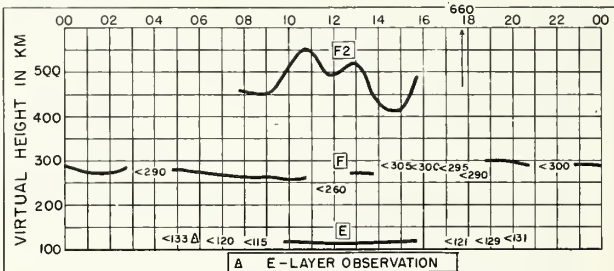


Fig. 15. FLETCHERS ICE I.  
78.7°N, 123.5°W SEPTEMBER 1958

Commonwealth Scientific, Calgary, Colo.

NBS 503



— LIMITING FREQUENCY = 3 Mc.  
- - - LIMITING FREQUENCY = 5 Mc.  
- · - · - LIMITING FREQUENCY = 7 Mc.

Fig. 16. FLETCHERS ICE I. SEPTEMBER 1958

Commonwealth Scientific, Calgary, Colo.

NBS 490



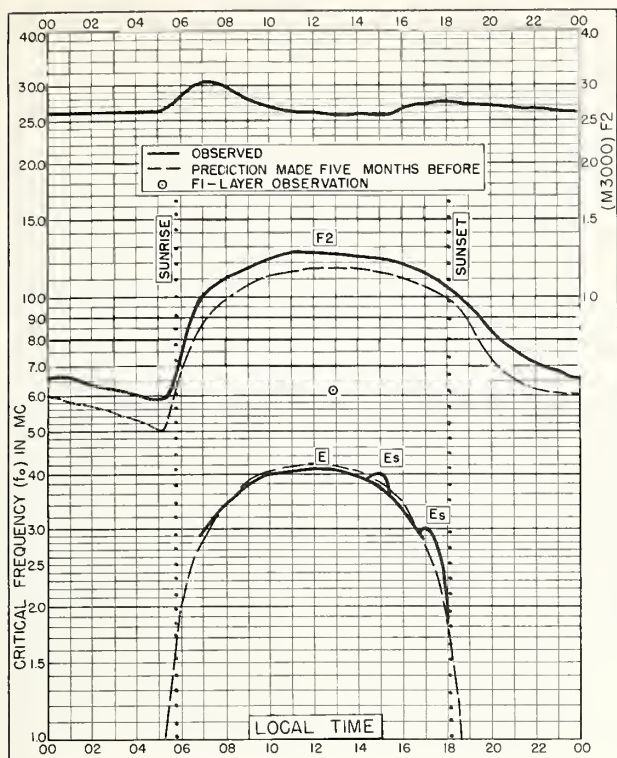


Fig. 17. WHITE SANDS, NEW MEXICO  
32.3°N, 106.5°W SEPTEMBER 1958

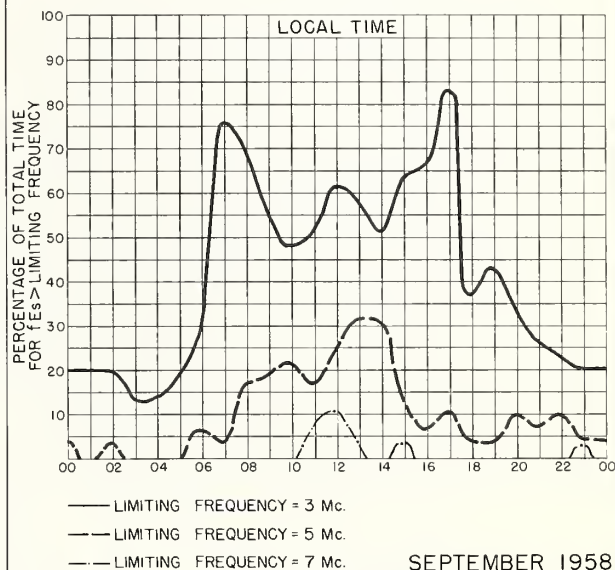
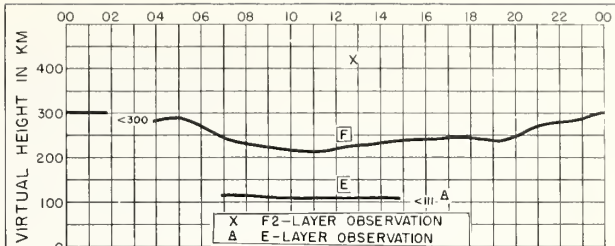


Fig. 18. WHITE SANDS, NEW MEXICO

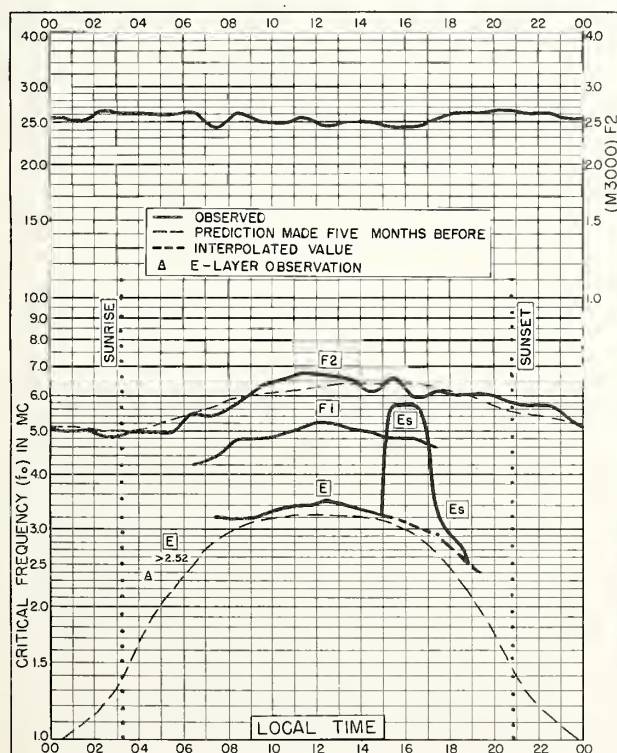


Fig. 19. GODHAVN, GREENLAND  
69.3°N, 53.5°W AUGUST 1958

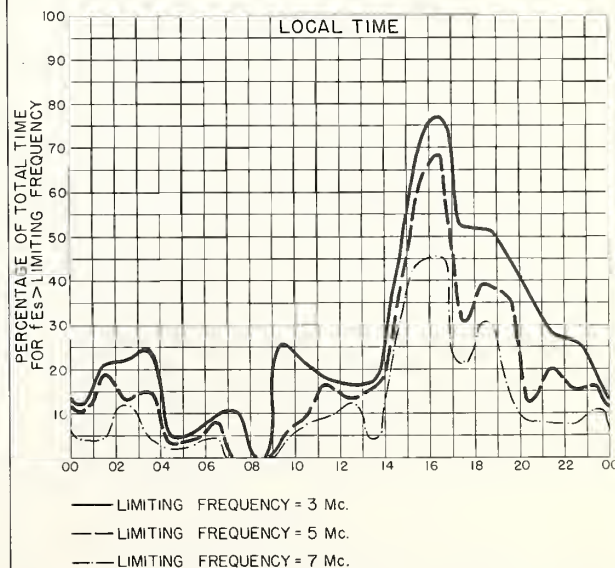
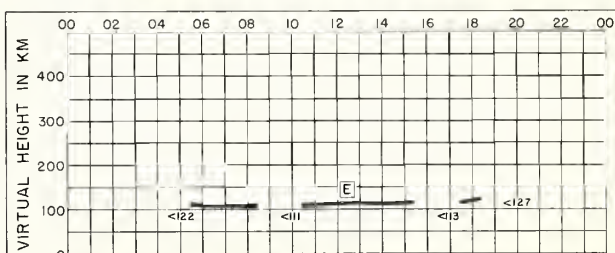


Fig. 20. GODHAVN, GREENLAND AUGUST 1958

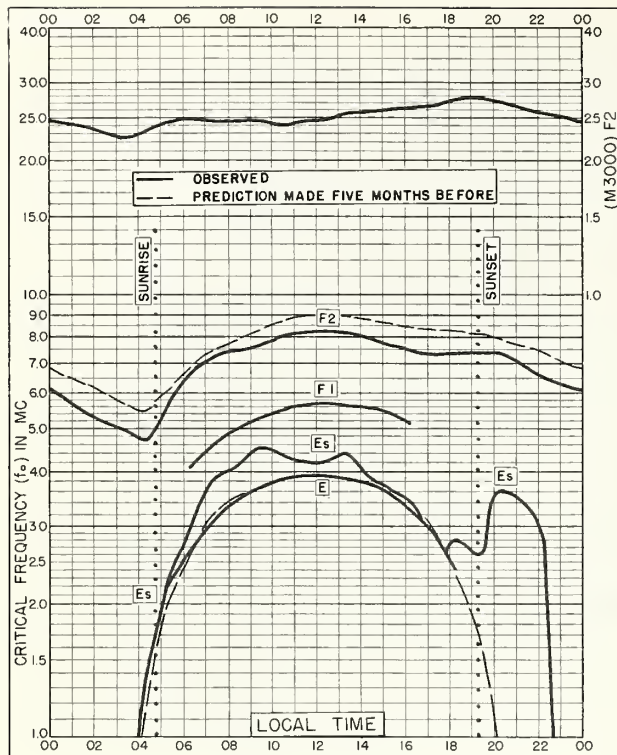


Fig. 21. ADAK, ALASKA  
51.9°N, 176.6°W

AUGUST 1958

Commerce/Beardslee-Boulter, Colo.

NBS 503

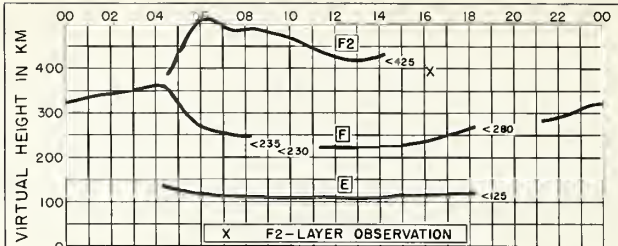


Fig. 22. ADAK, ALASKA

AUGUST 1958

Commerce/Beardslee-Boulter, Colo.

NBS 490

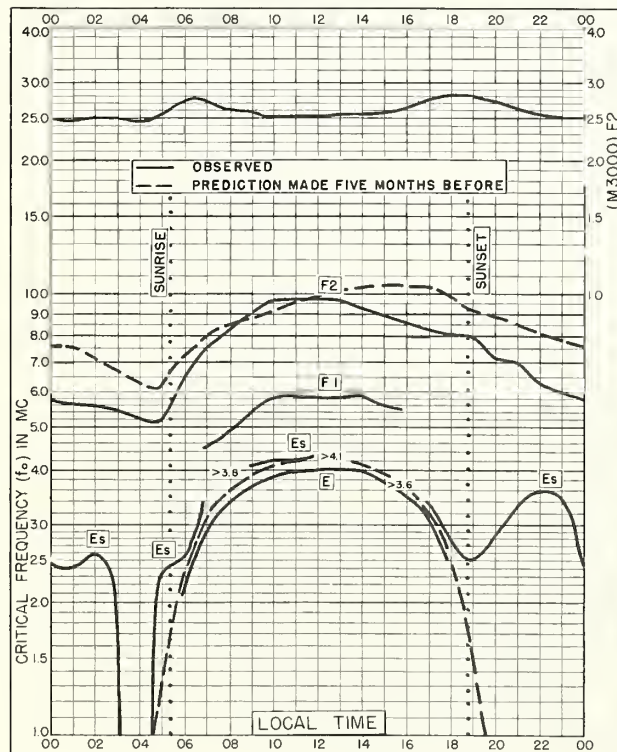


Fig. 23. SAN FRANCISCO, CALIFORNIA  
37.4°N, 122.2°W

AUGUST 1958

Commerce/Beardslee-Boulter, Colo.

NBS 503

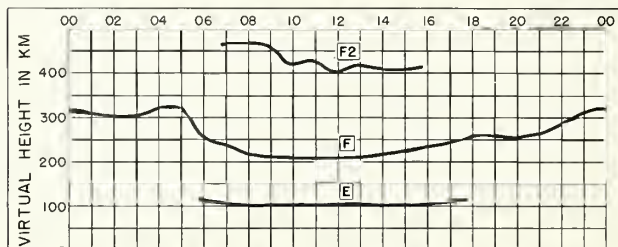


Fig. 24. SAN FRANCISCO, CALIFORNIA

AUGUST 1958

Commerce/Beardslee-Boulter, Colo.

NBS 490



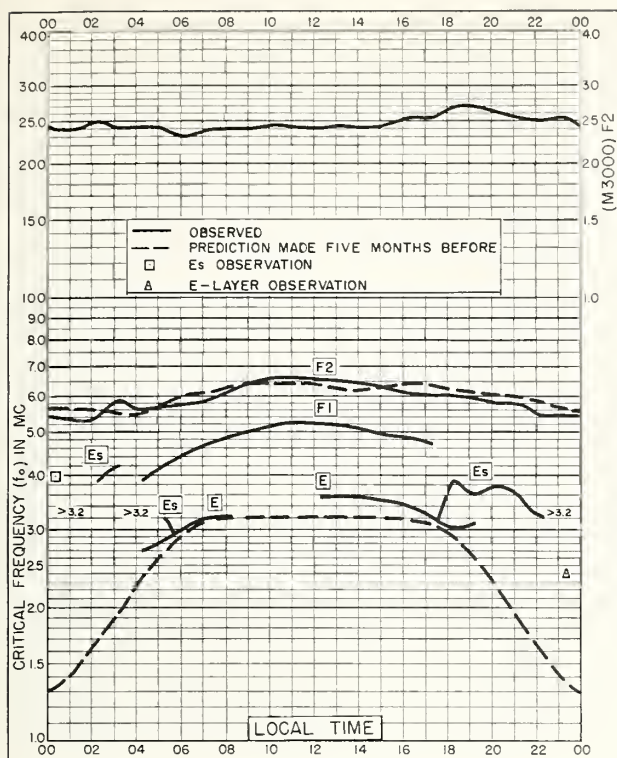


Fig. 25. TROMSØ, NORWAY  
69.7°N, 19.0°E

JULY 1958

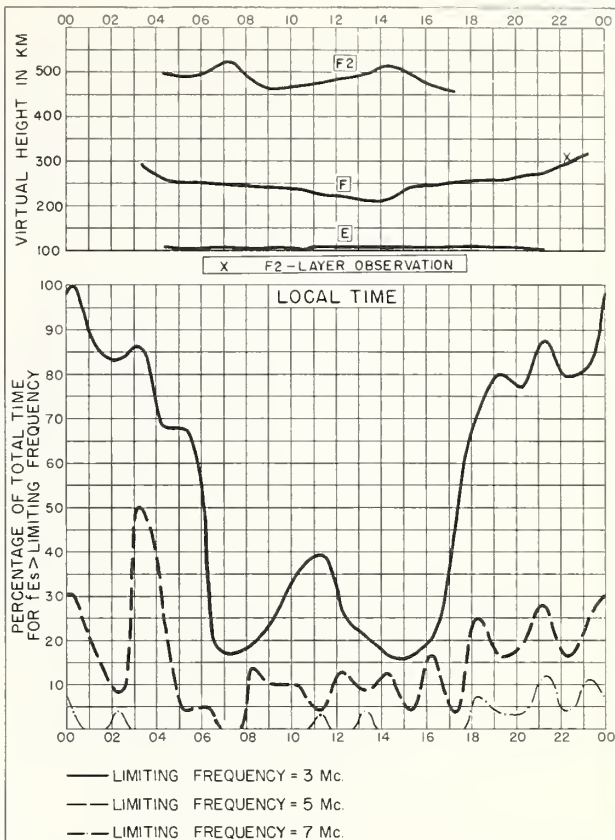


Fig. 26. TROMSØ, NORWAY

JULY 1958

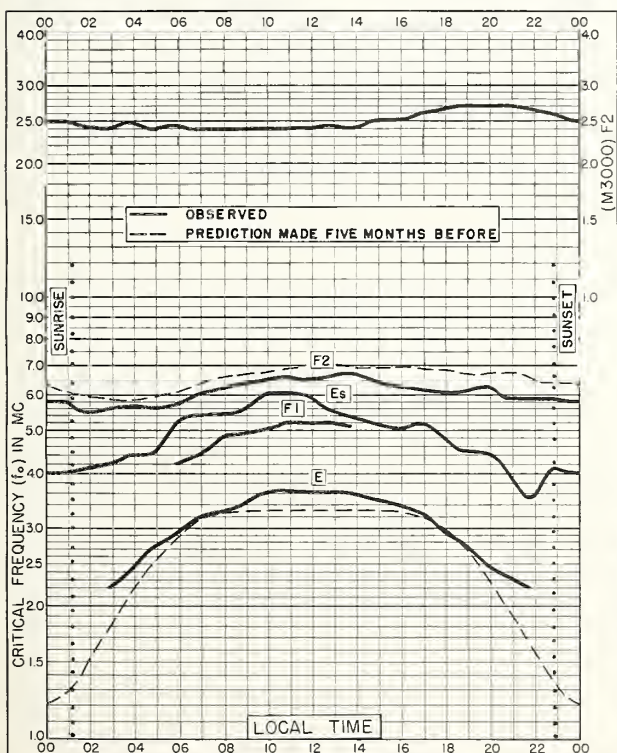


Fig. 27. SODANKYLÄ, FINLAND  
67.4°N, 26.6°E

JULY 1958

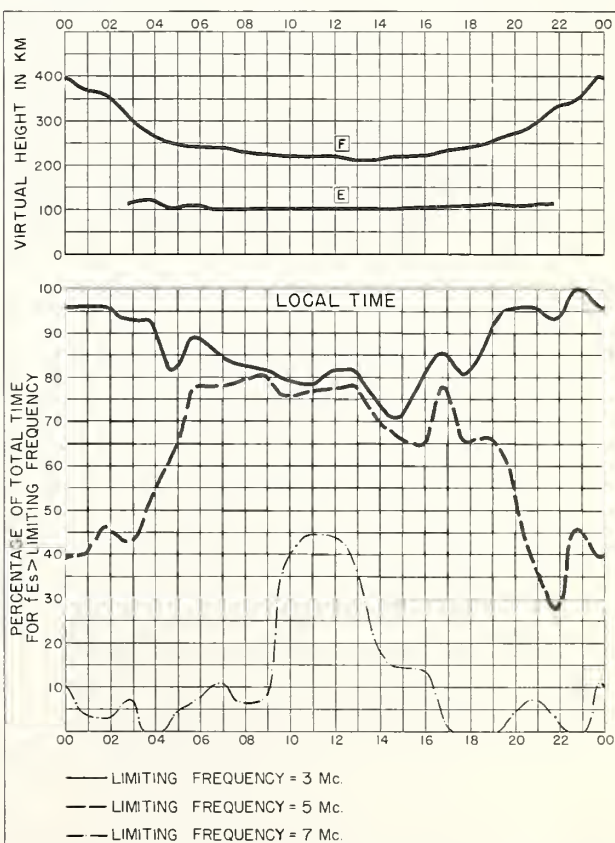


Fig. 28. SODANKYLÄ, FINLAND

JULY 1958

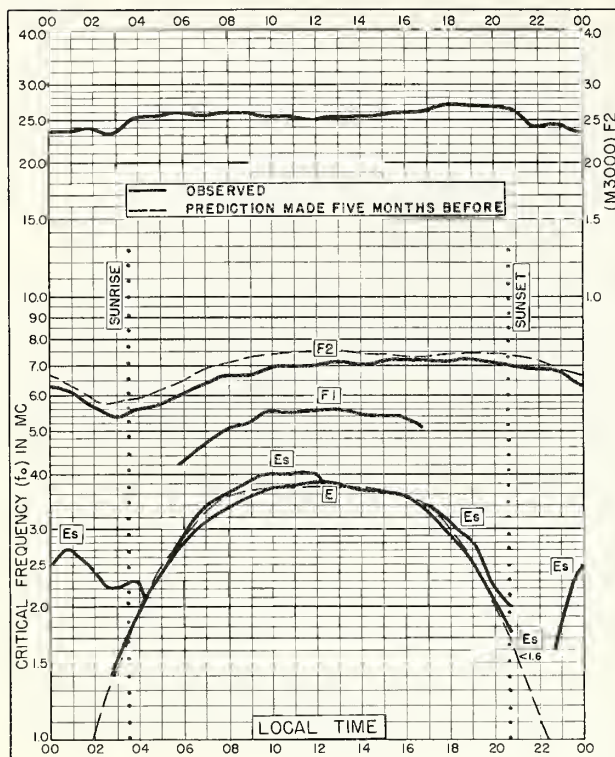


Fig. 29. INVERNESS, SCOTLAND  
57.4°N, 4.2°W

JULY 1958

NBS 503

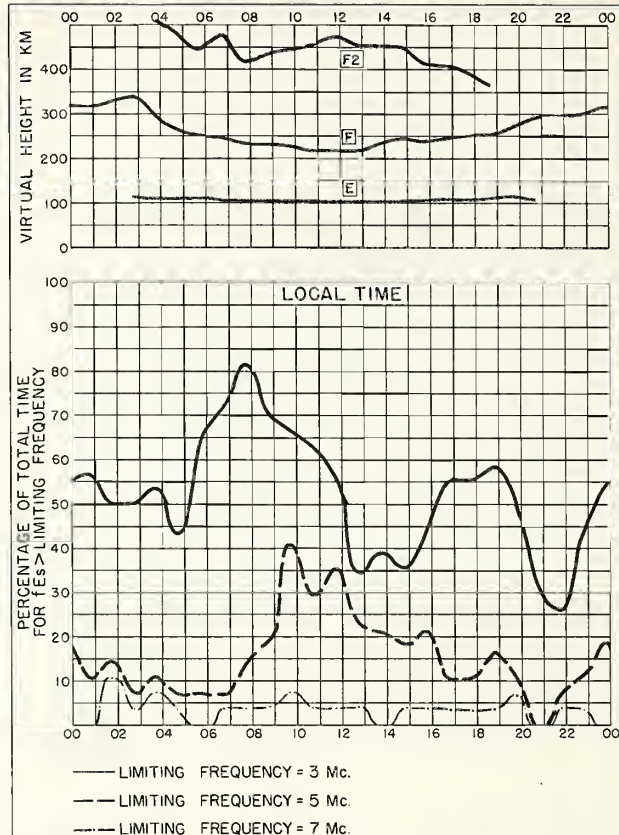


Fig. 30. INVERNESS, SCOTLAND

JULY 1958

NBS 490

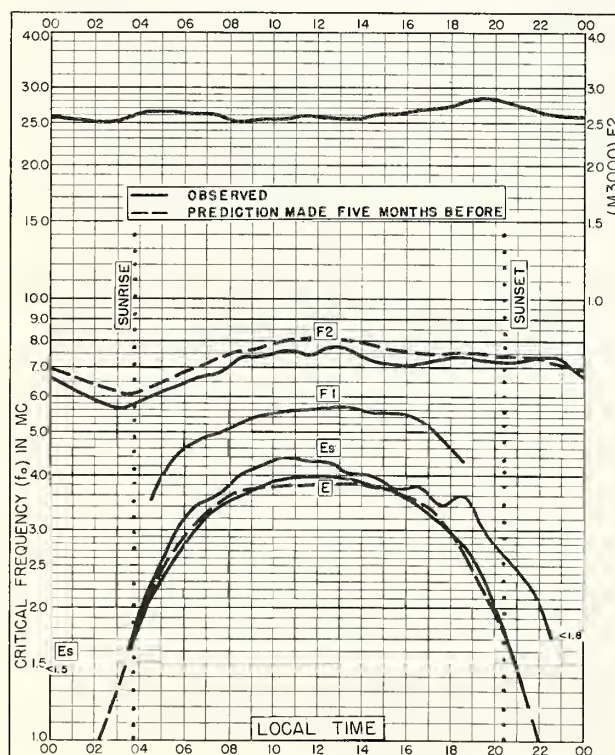


Fig. 31. MOSCOW, U.S.S.R.  
55.5°N, 37.3°E

JULY 1958

NBS 503

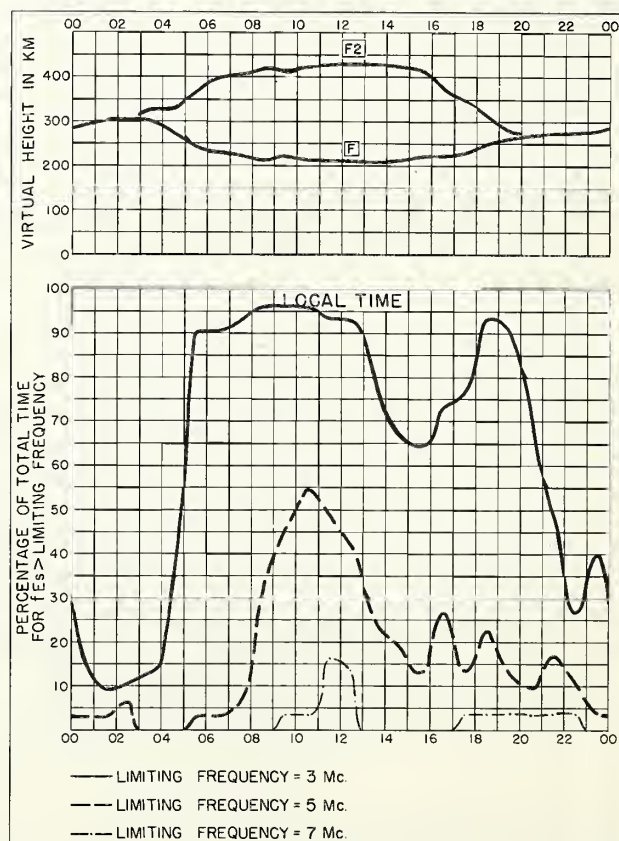


Fig. 32. MOSCOW, U.S.S.R.

JULY 1958

NBS 490



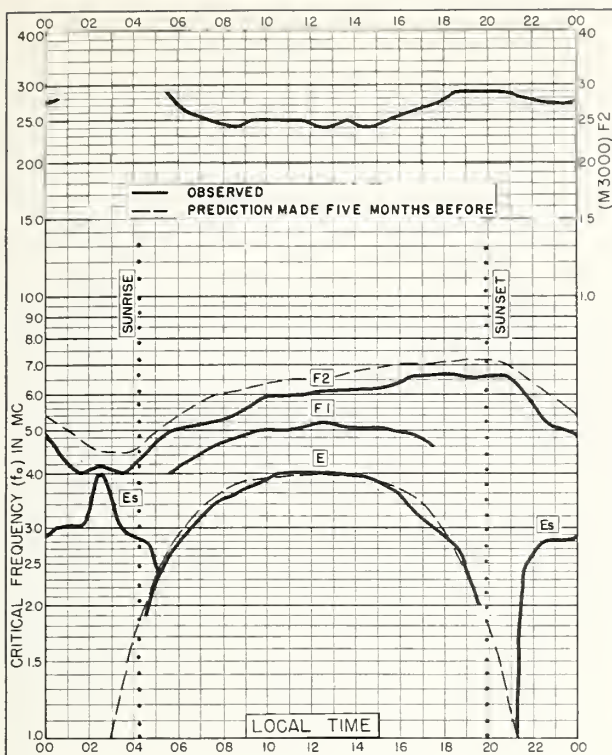


Fig. 33. WINNIPEG, CANADA  
49.9°N, 97.4°W

JULY 1958

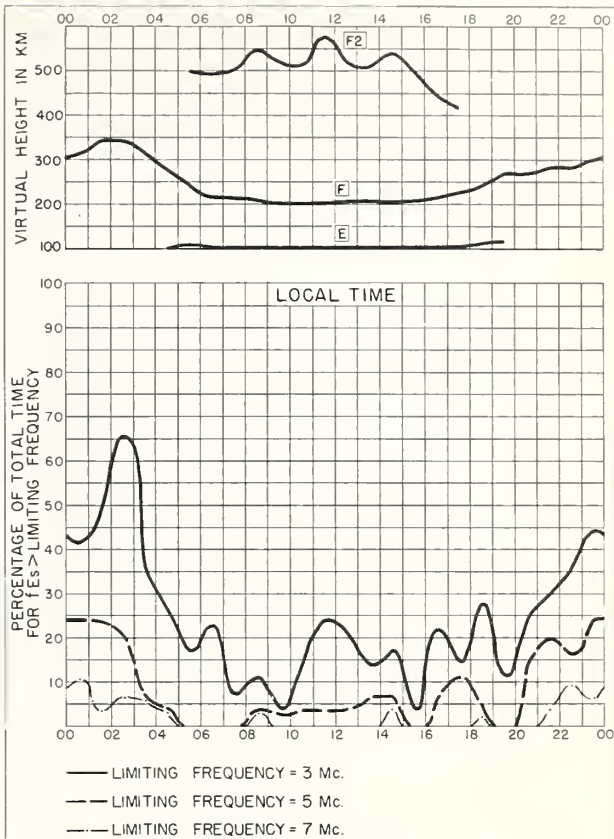


Fig. 34. WINNIPEG, CANADA

JULY 1958

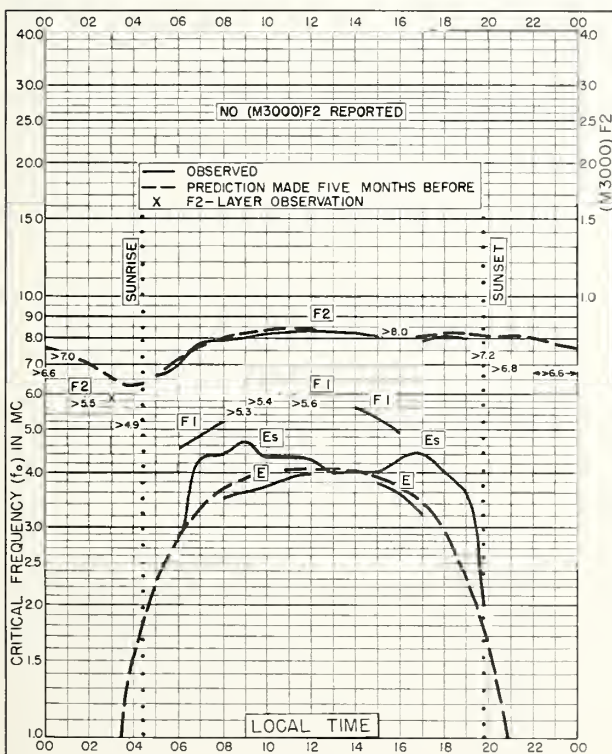


Fig. 35. GRAZ, AUSTRIA  
47.1°N, 15.5°E

JULY 1958

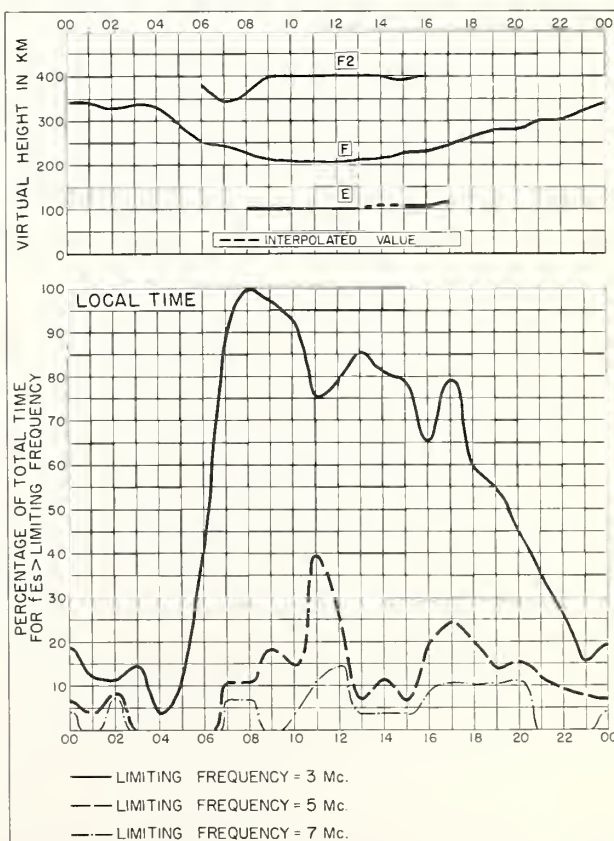


Fig. 36. GRAZ, AUSTRIA

JULY 1958

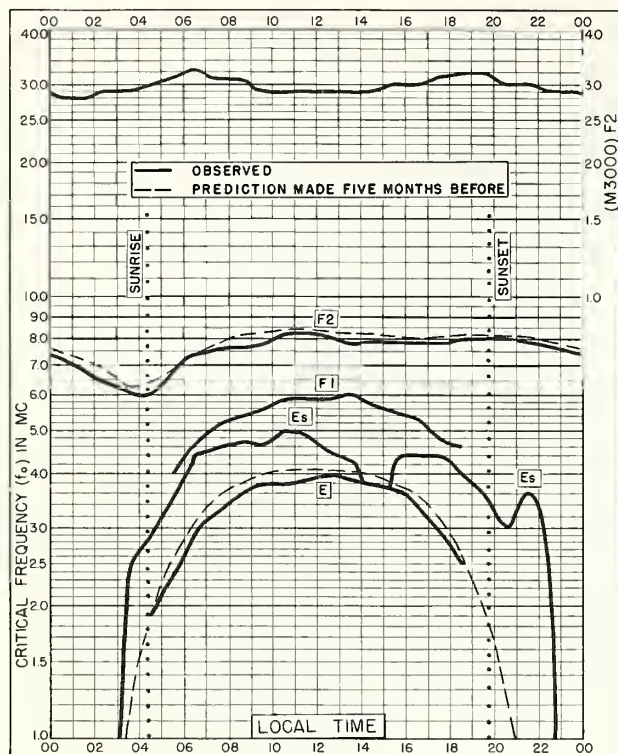


Fig. 37. SCHWARZENBURG, SWITZERLAND  
46.8°N, 7.3°E  
JULY 1958

Commerce Standard Products, Co.

NBS 503

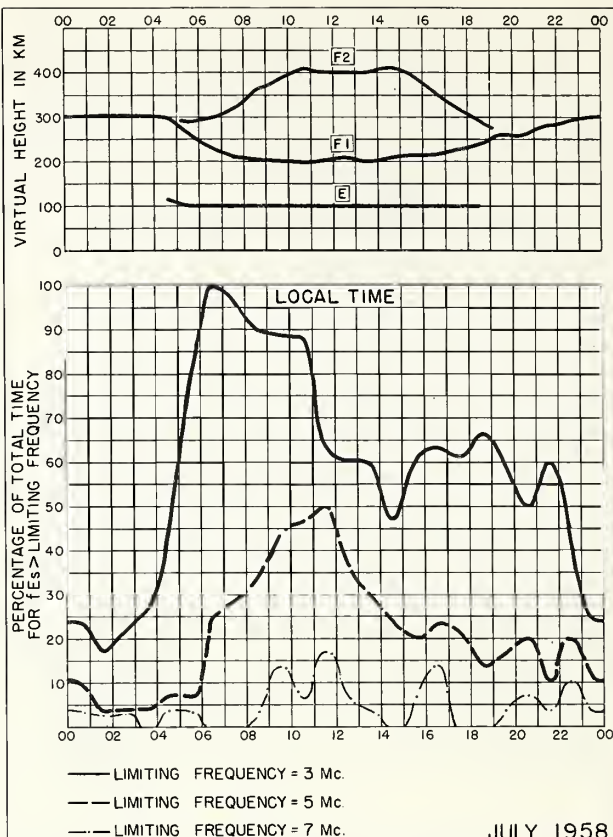


Fig. 38. SCHWARZENBURG, SWITZERLAND

JULY 1958

Commerce Standard Products, Co.

NBS 490

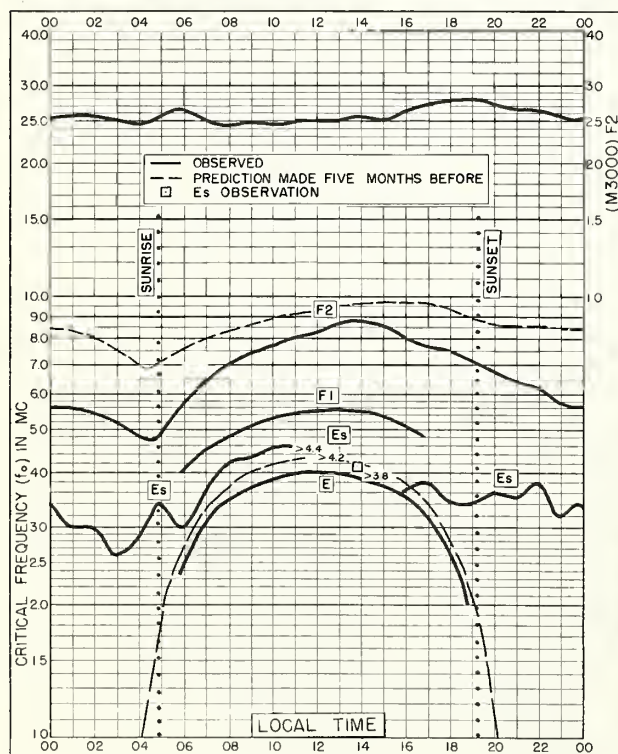


Fig. 39. SAN FRANCISCO, CALIFORNIA  
37.4°N, 122.2°W  
JULY 1958

Commerce Standard Products, Co.

NBS 503

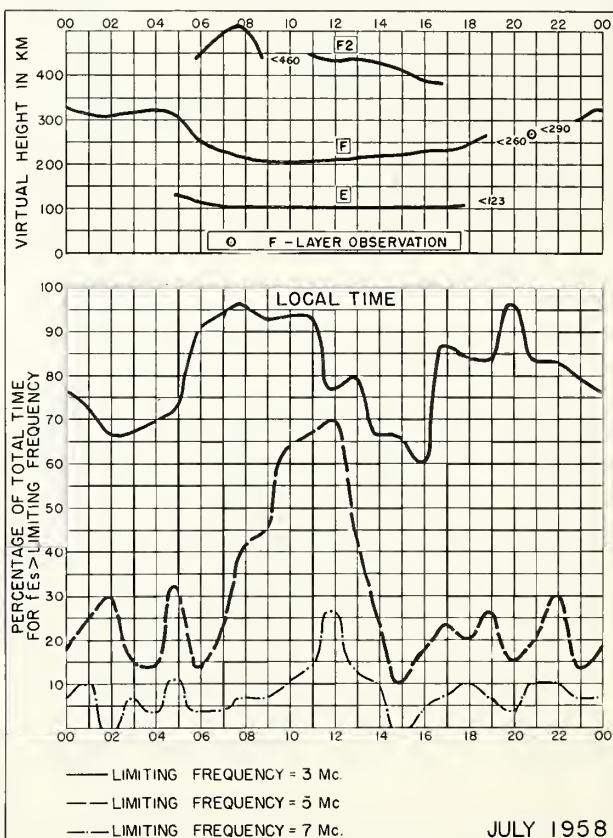


Fig. 40. SAN FRANCISCO, CALIFORNIA

JULY 1958

Commerce Standard Products, Co.

NBS 490



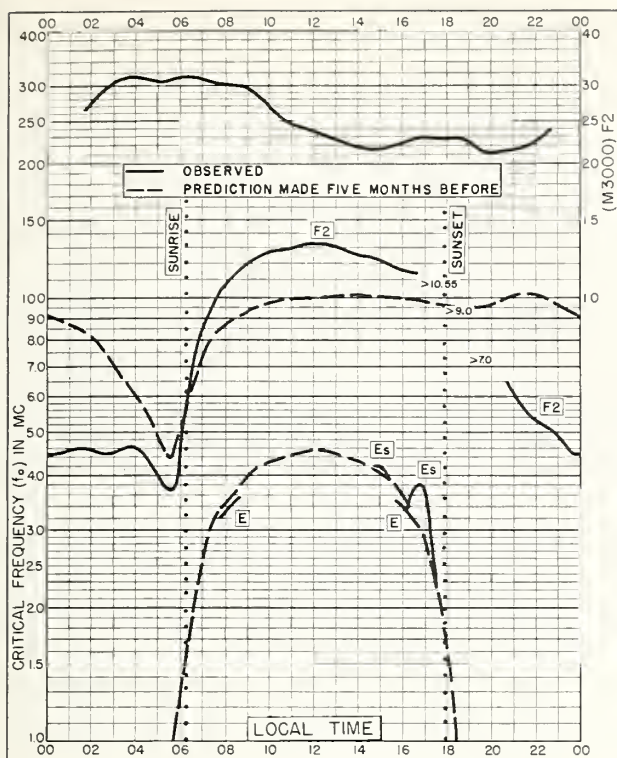


Fig. 41. NATAL, BRAZIL  
5.3°S, 35.1°W

JULY 1958

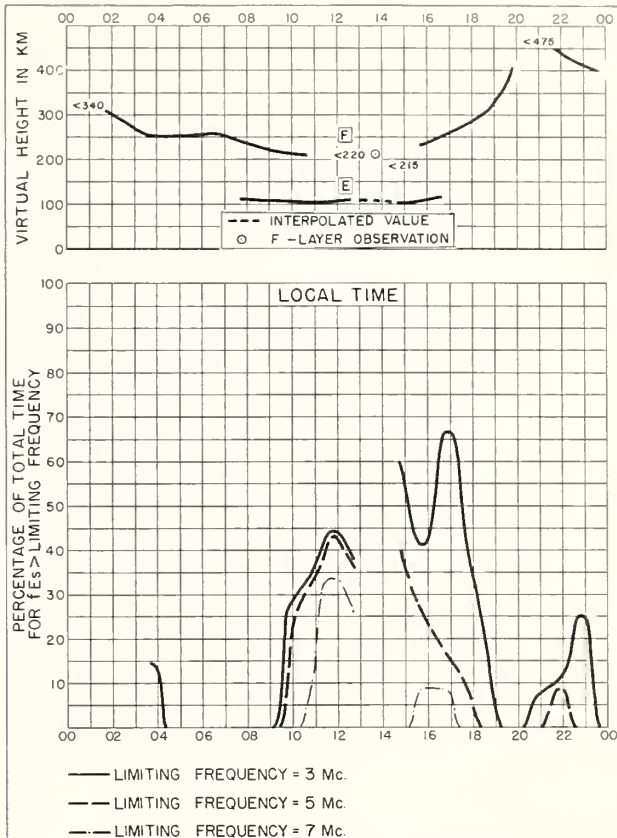


Fig. 42. NATAL, BRAZIL

JULY 1958

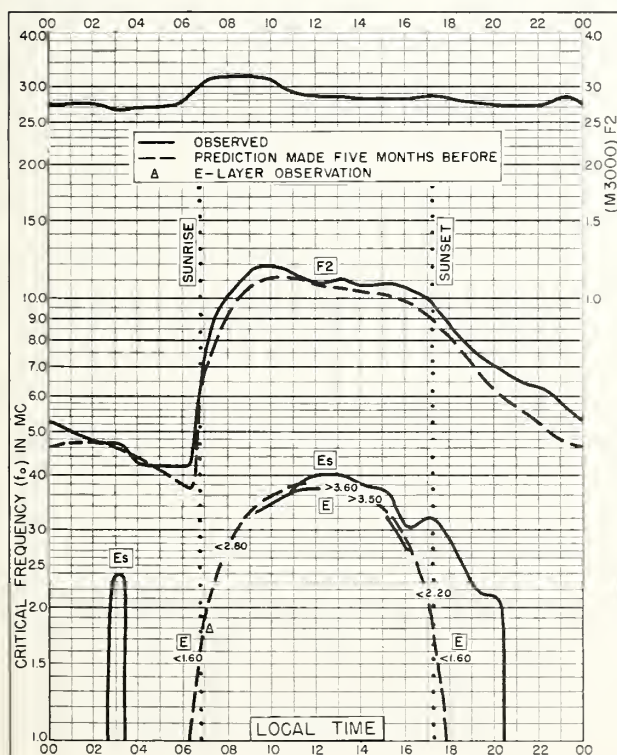


Fig. 43. BRISBANE, AUSTRALIA  
27.5°S, 152.9°E

JULY 1958

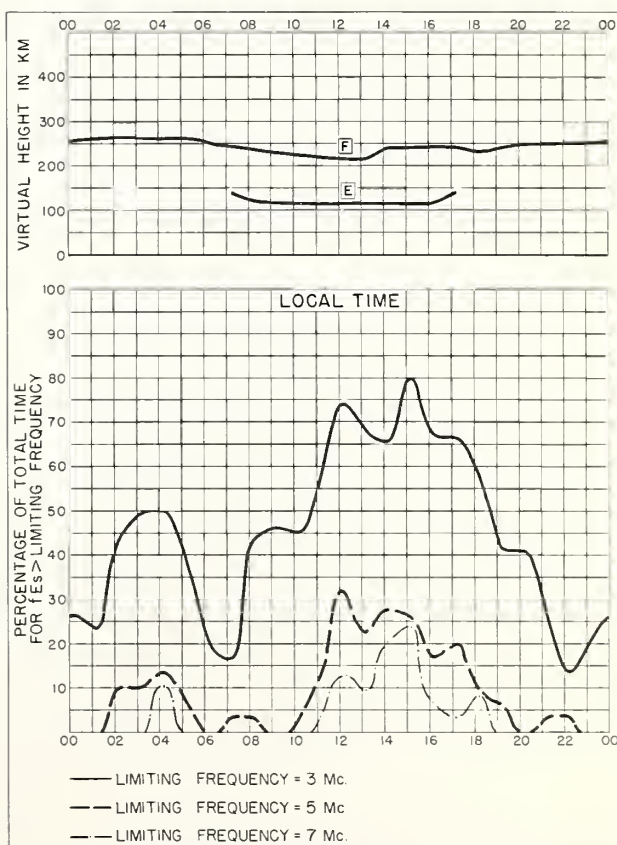


Fig. 44. BRISBANE, AUSTRALIA

JULY 1958

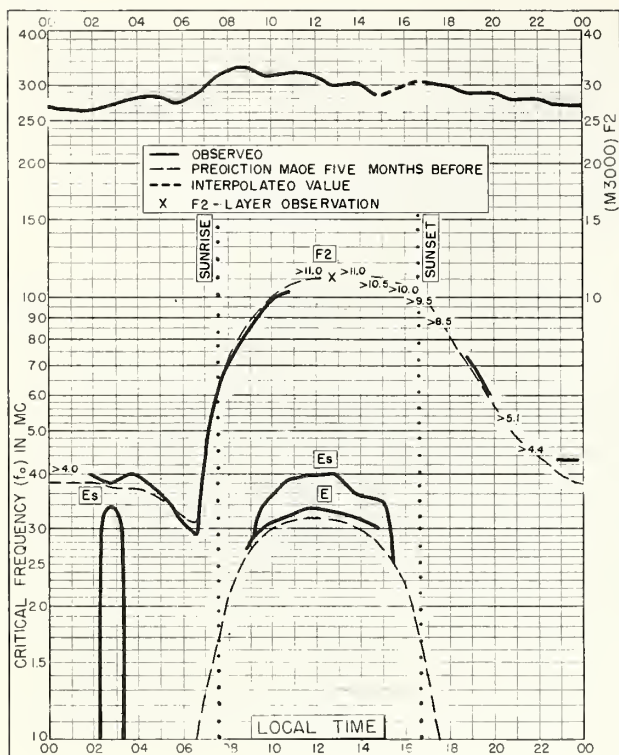


Fig. 45. HOBART, TASMANIA  
42.9°S, 147.2°E

JULY 1958

NBS 503

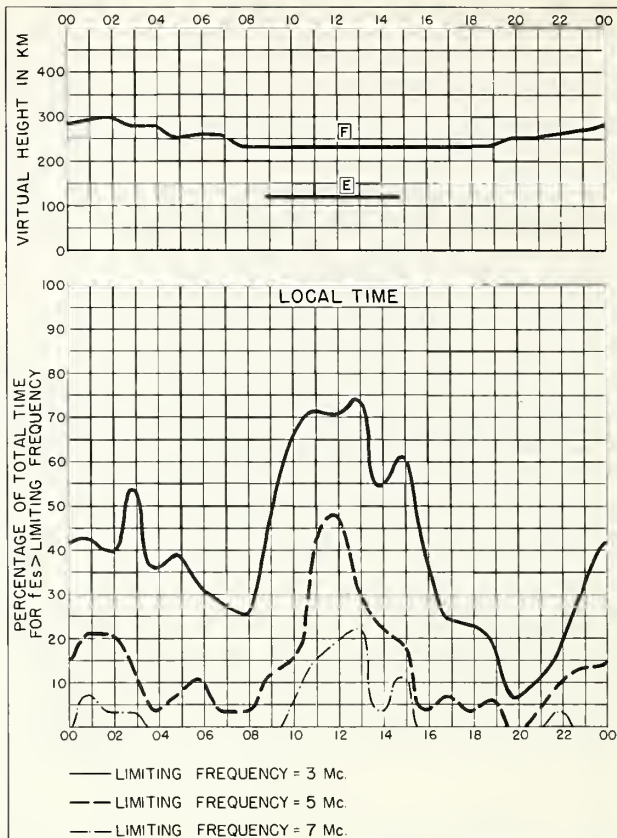


Fig. 46. HOBART, TASMANIA

JULY 1958

NBS 490

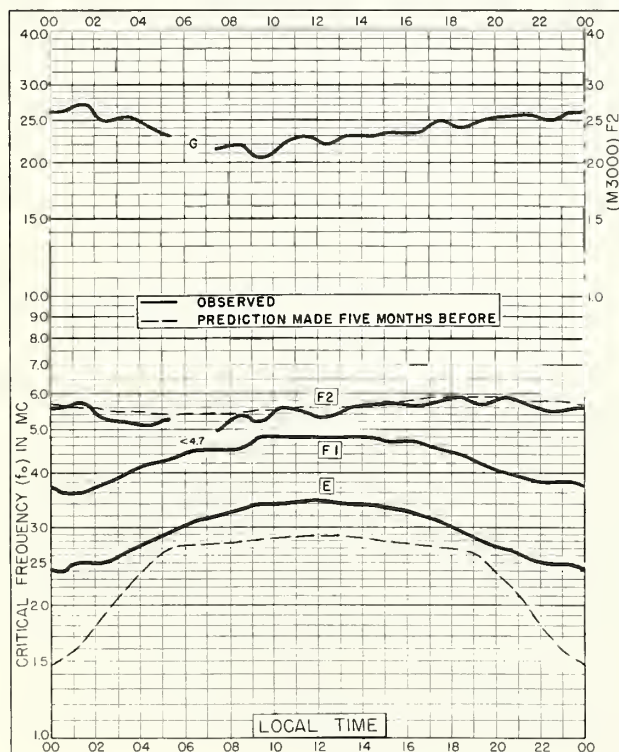


Fig. 47. THULE, GREENLAND  
76.6°N, 68.7°W

JUNE 1958

NBS 503

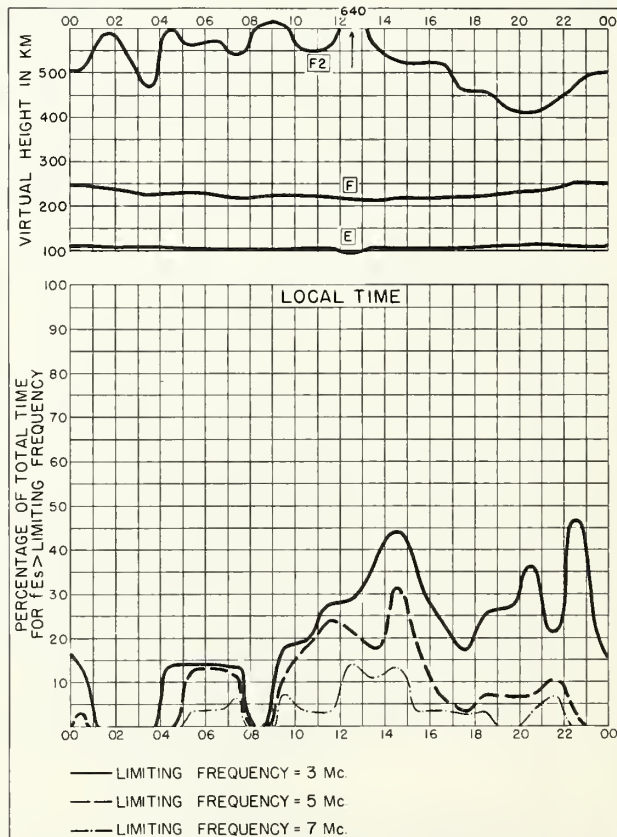


Fig. 48. THULE, GREENLAND

JUNE 1958

NBS 490



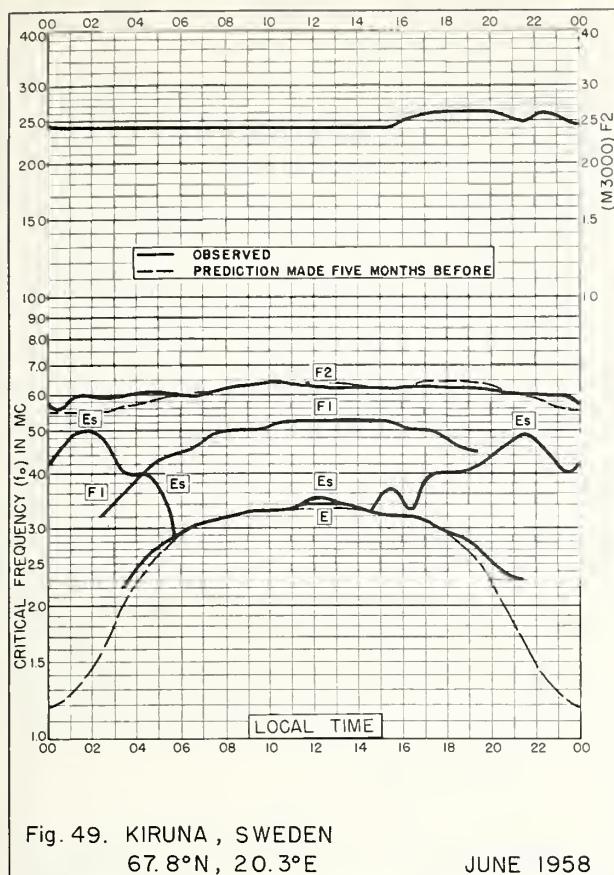


Fig. 49. KIRUNA, SWEDEN  
67.8°N, 20.3°E

JUNE 1958

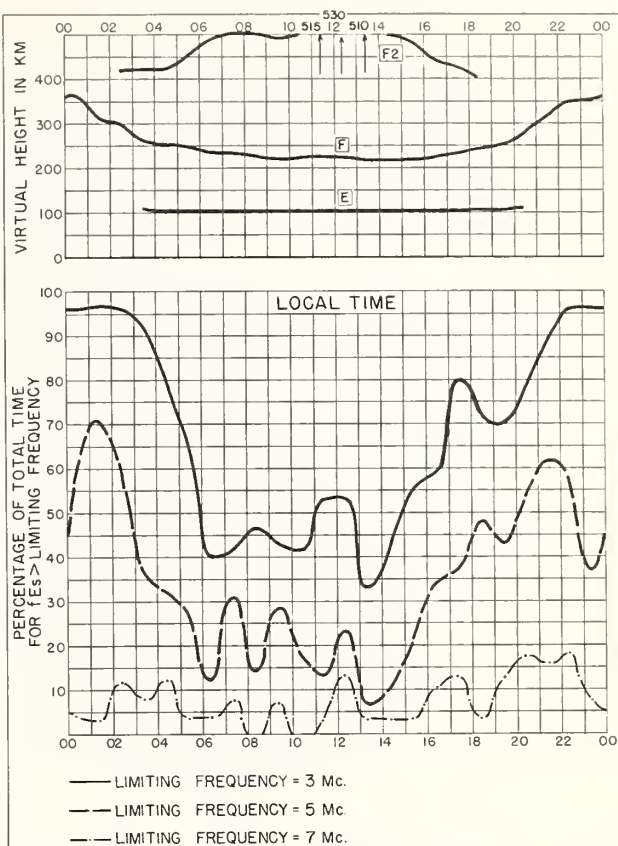


Fig. 50. KIRUNA, SWEDEN

JUNE 1958

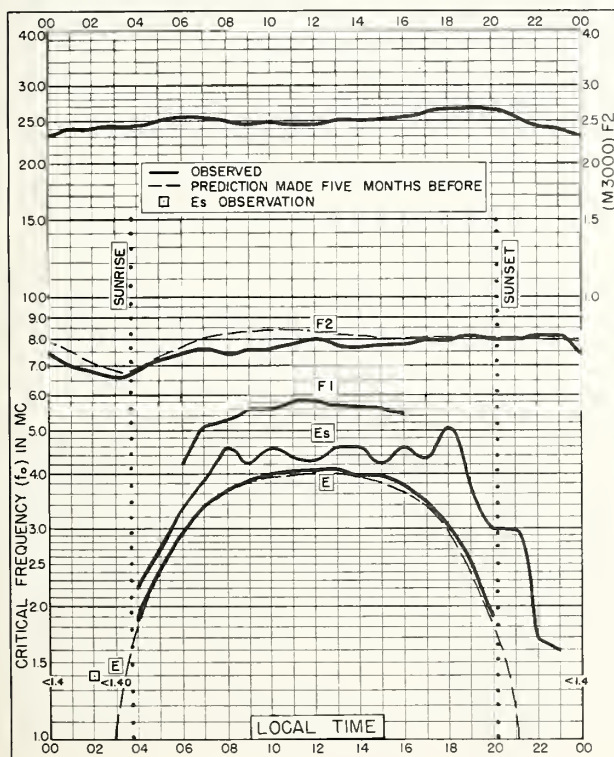


Fig. 51. SLOUGH, ENGLAND  
51.5°N, 0.6°W

JUNE 1958

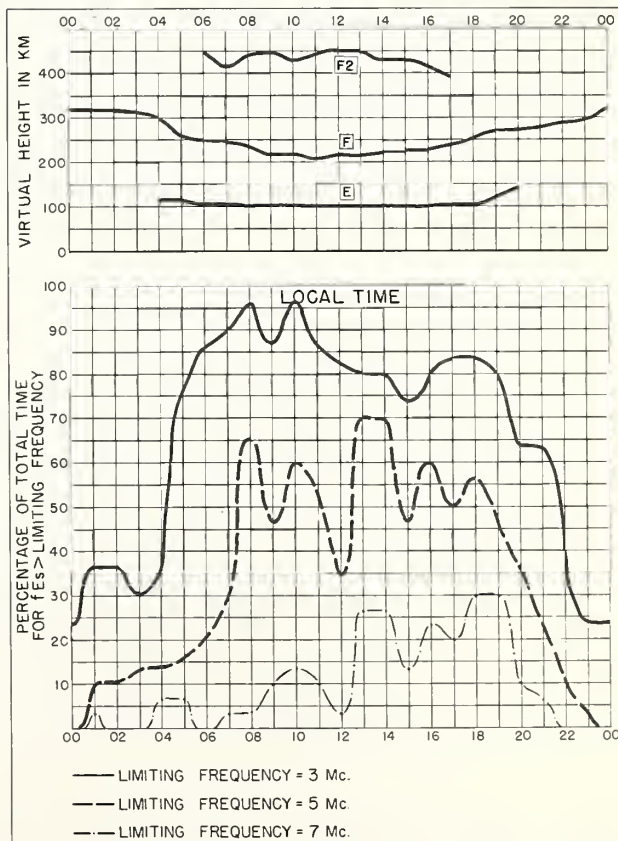


Fig. 52. SLOUGH, ENGLAND

JUNE 1958

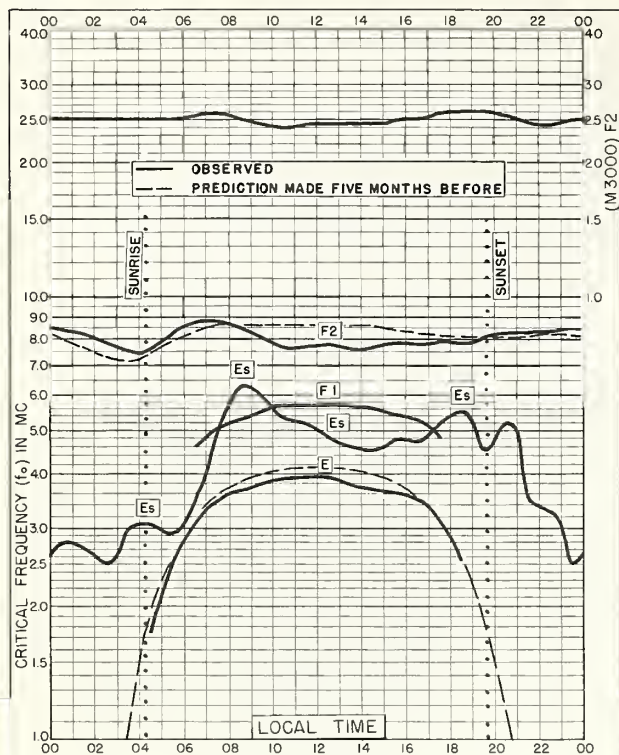


Fig. 53. WAKKANAI, JAPAN  
45.4°N, 141.7°E

JUNE 1958

NBS 503

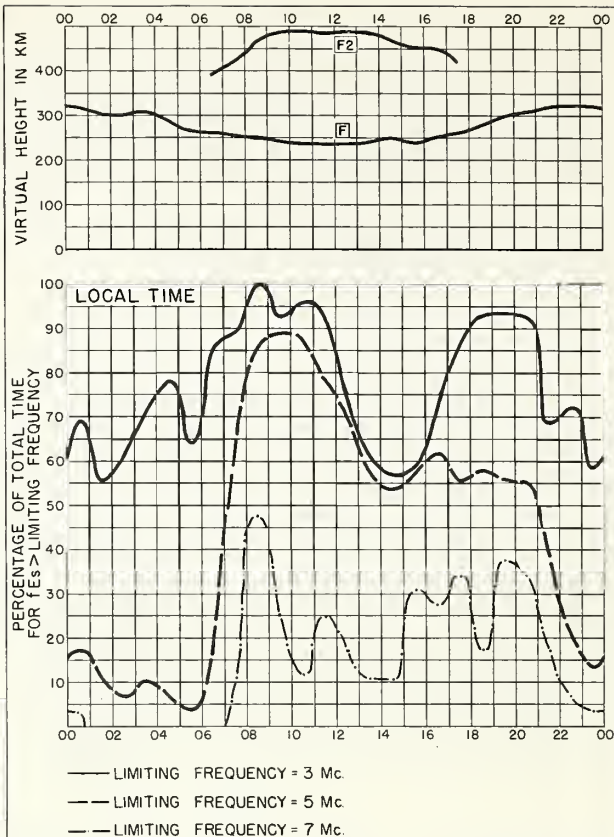


Fig. 54. WAKKANAI, JAPAN

JUNE 1958

NBS 490

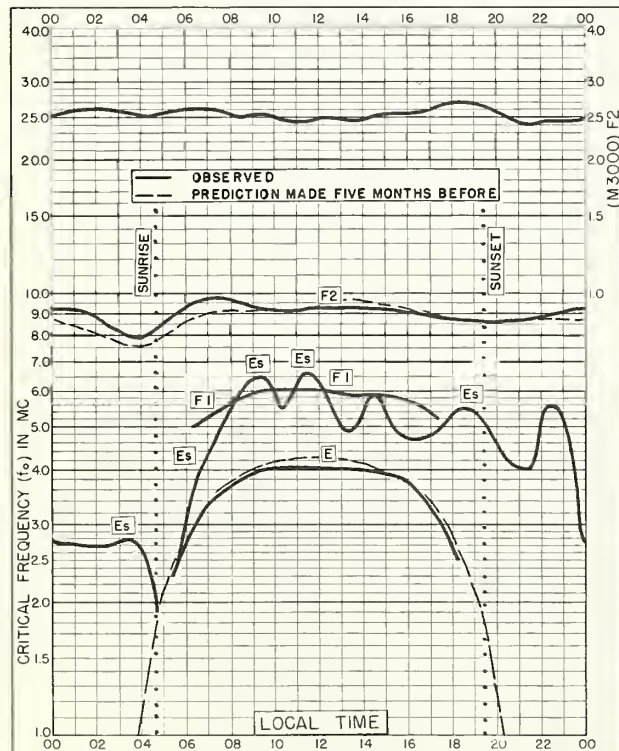


Fig. 55. AKITA, JAPAN  
39.7°N, 140.1°E

JUNE 1958

NBS 503

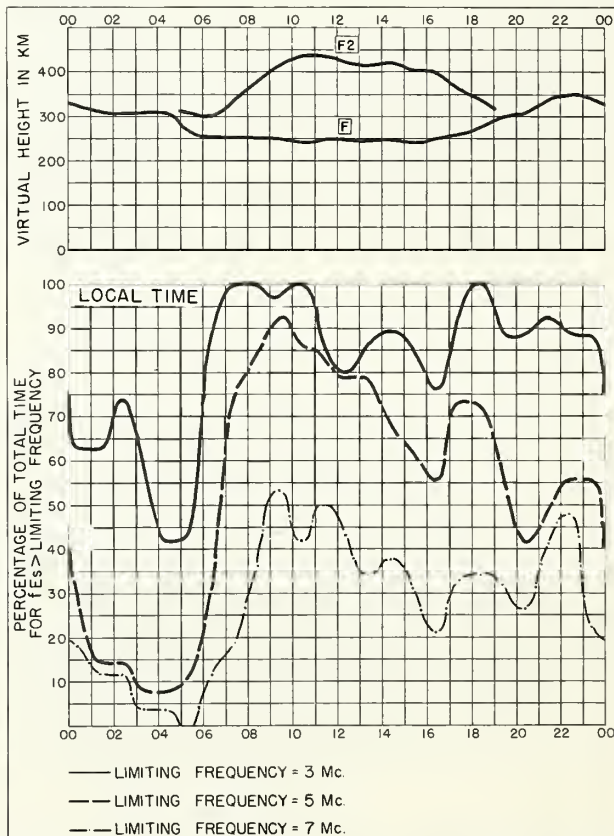


Fig. 56. AKITA, JAPAN

JUNE 1958

NBS 490



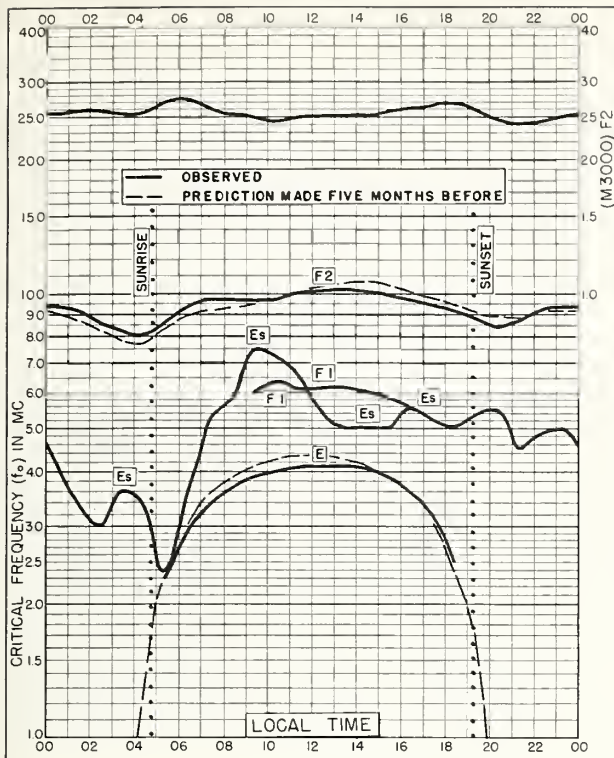


Fig. 57. TOKYO, JAPAN  
35.7°N, 139.5°E

JUNE 1958

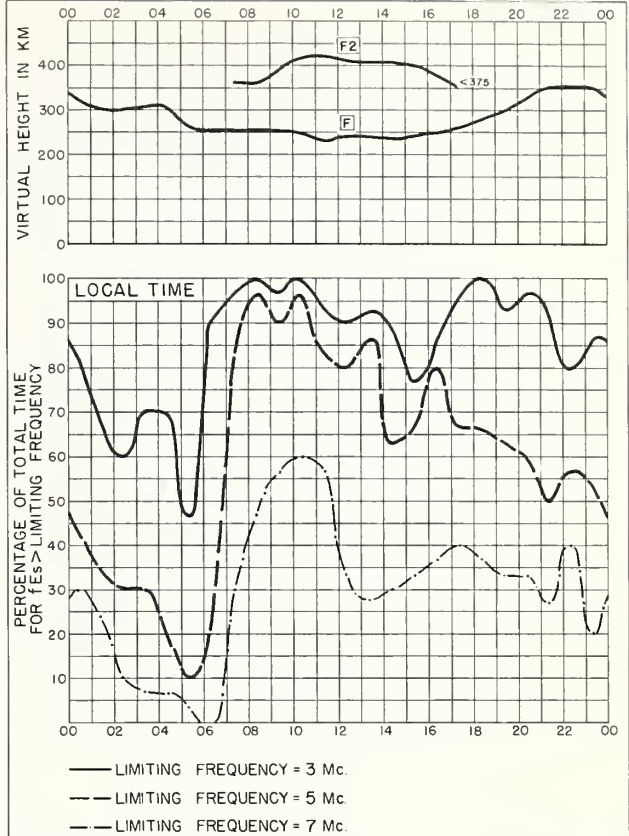


Fig. 58. TOKYO, JAPAN

JUNE 1958

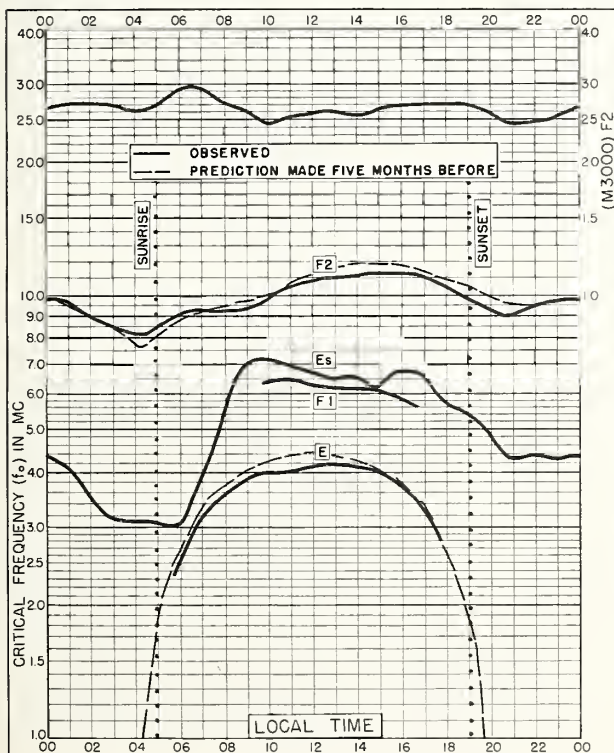


Fig. 59. YAMAGAWA, JAPAN  
31.2°N, 130.6°E

JUNE 1958

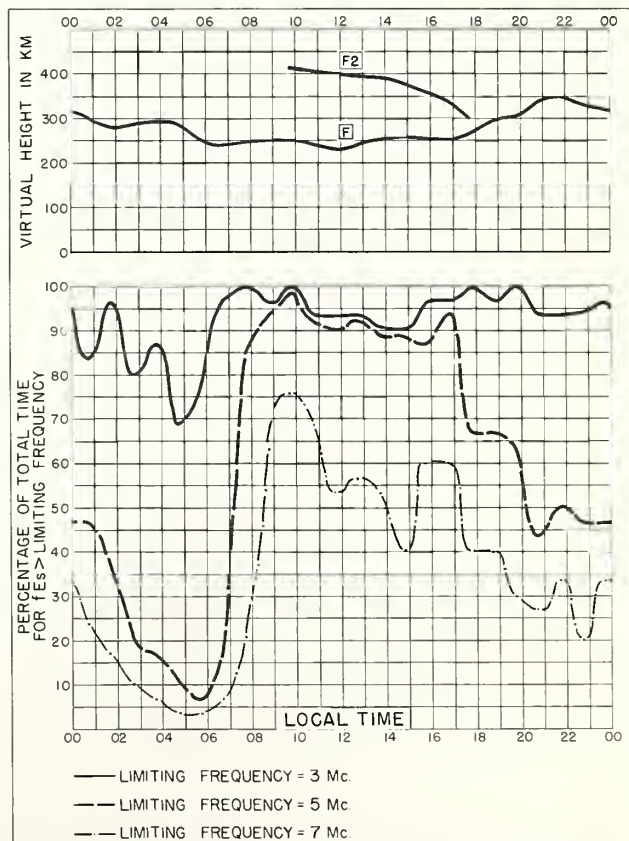


Fig. 60. YAMAGAWA, JAPAN

JUNE 1958

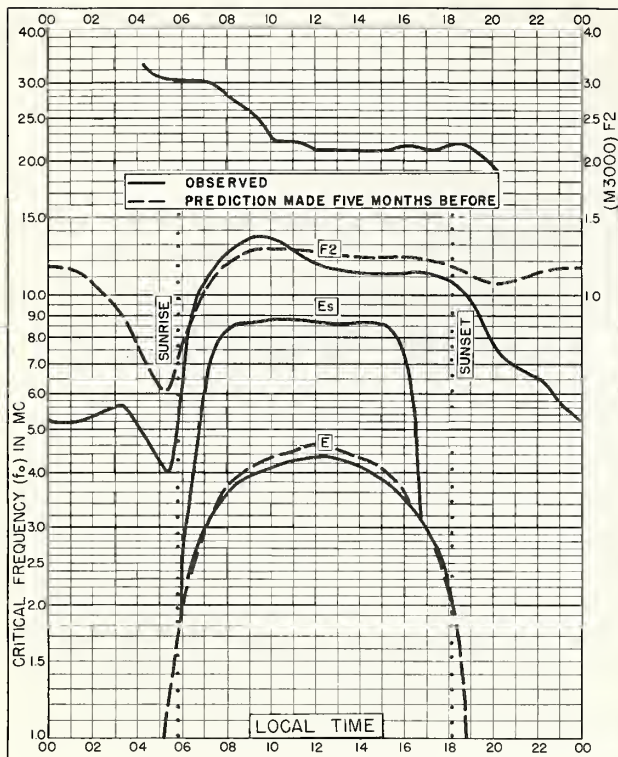
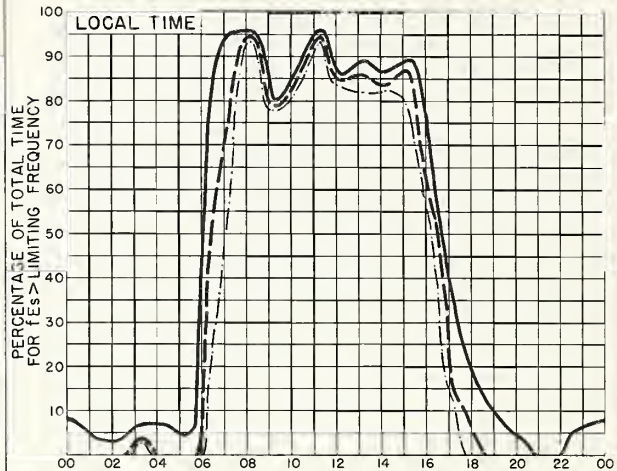
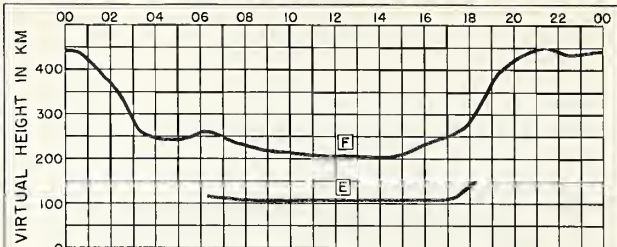


Fig. 61. IBADAN, NIGERIA  
7.4°N, 3.9°E

JUNE 1958

NBS 503



— LIMITING FREQUENCY = 3 Mc.  
- - - LIMITING FREQUENCY = 5 Mc.  
- · - · - LIMITING FREQUENCY = 7 Mc.

Fig. 62. IBADAN, NIGERIA

JUNE 1958

NBS 490

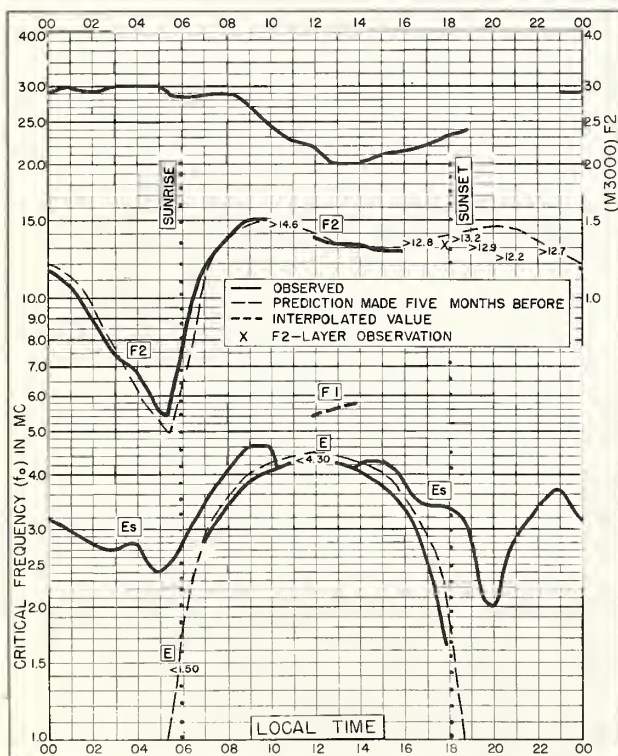
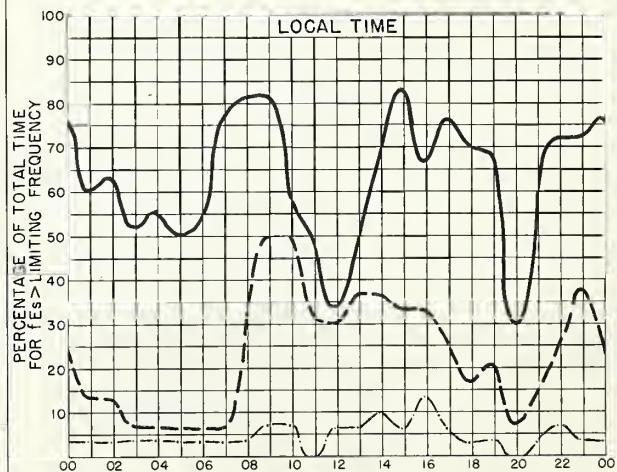
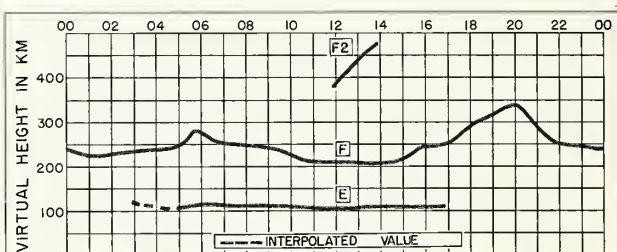


Fig. 63. SINGAPORE, BRITISH MALAYA  
1.3°N, 103.8°E

JUNE 1958

NBS 503



— LIMITING FREQUENCY = 3 Mc.  
- - - LIMITING FREQUENCY = 5 Mc.  
- · - · - LIMITING FREQUENCY = 7 Mc.

Fig. 64. SINGAPORE, BRITISH MALAYA

JUNE 1958

NBS 490



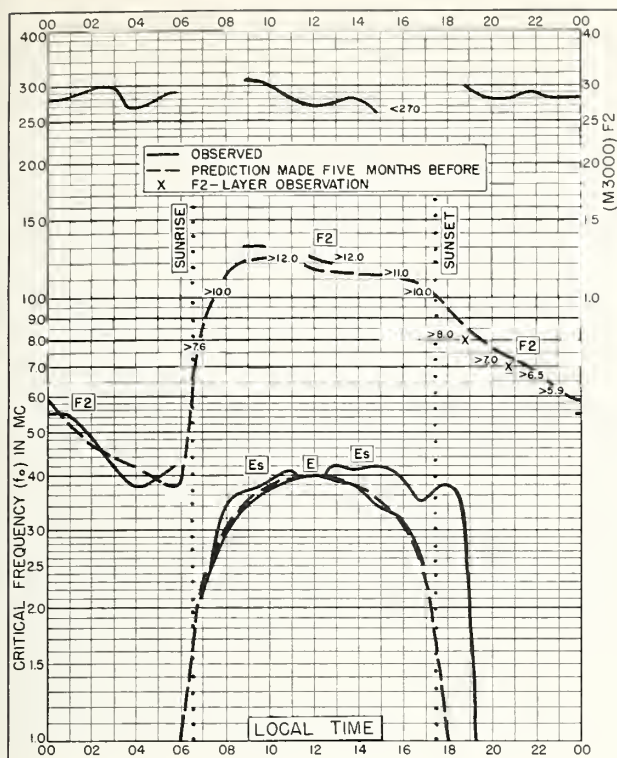


Fig. 65. TOWNSVILLE, AUSTRALIA  
19.3°S, 146.7°E

JUNE 1958

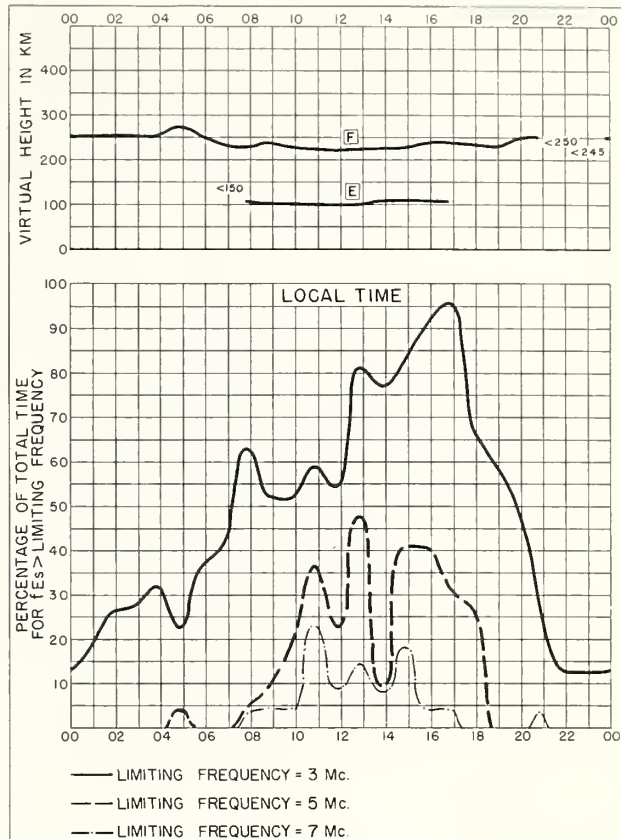


Fig. 66. TOWNSVILLE, AUSTRALIA

JUNE 1958

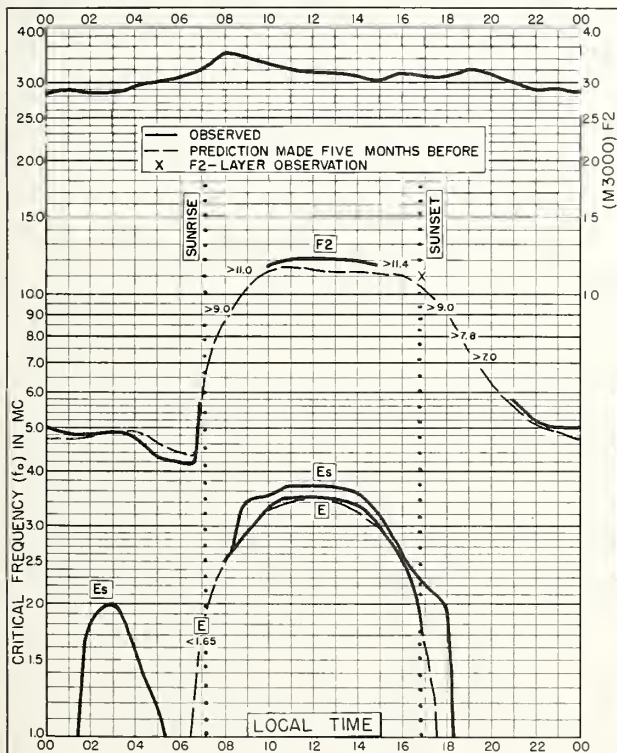


Fig. 67. CANBERRA, AUSTRALIA  
35.3°S, 149.0°E

JUNE 1958

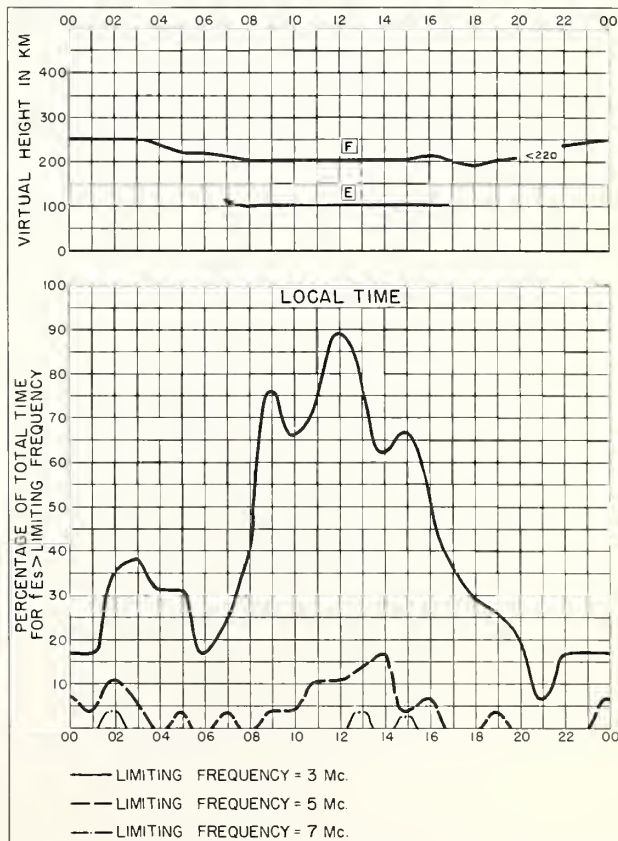


Fig. 68. CANBERRA, AUSTRALIA

JUNE 1958

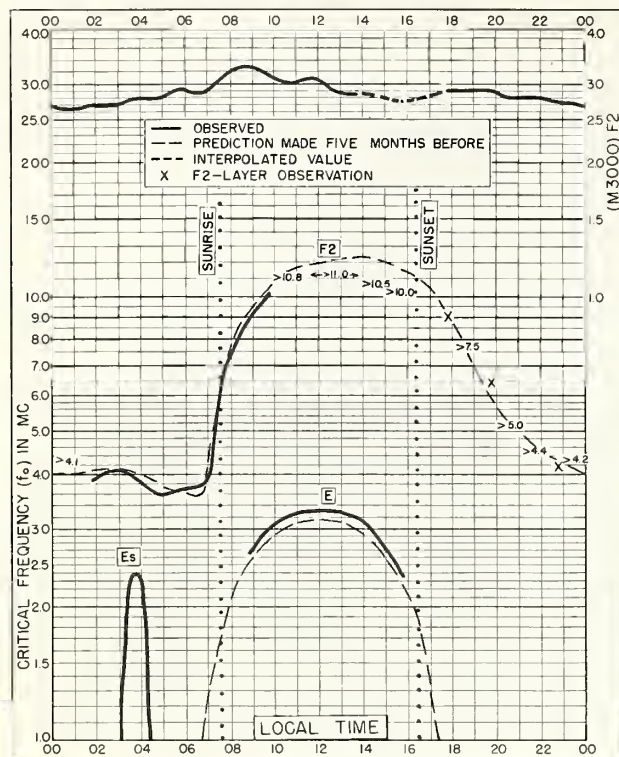


Fig. 69. HOBART, TASMANIA  
42.9°S, 147.2°E

JUNE 1958

NBS 503

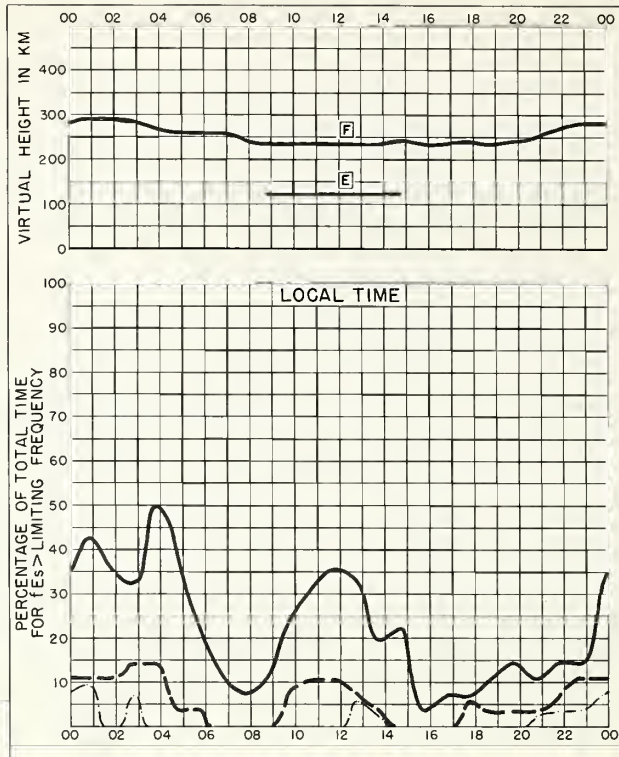


Fig. 70. HOBART, TASMANIA

JUNE 1958

NBS 490

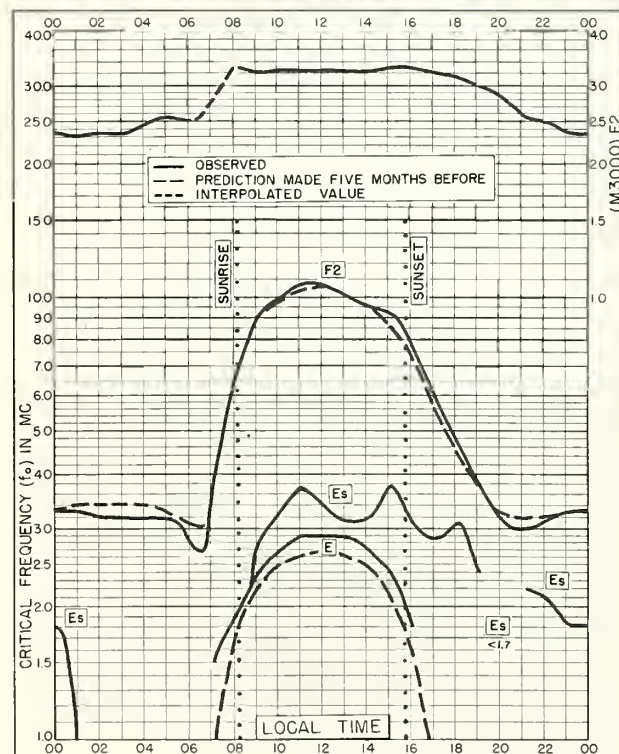


Fig. 71. FALKLAND IS.  
51.7°S, 57.8°W

JUNE 1958

NBS 503

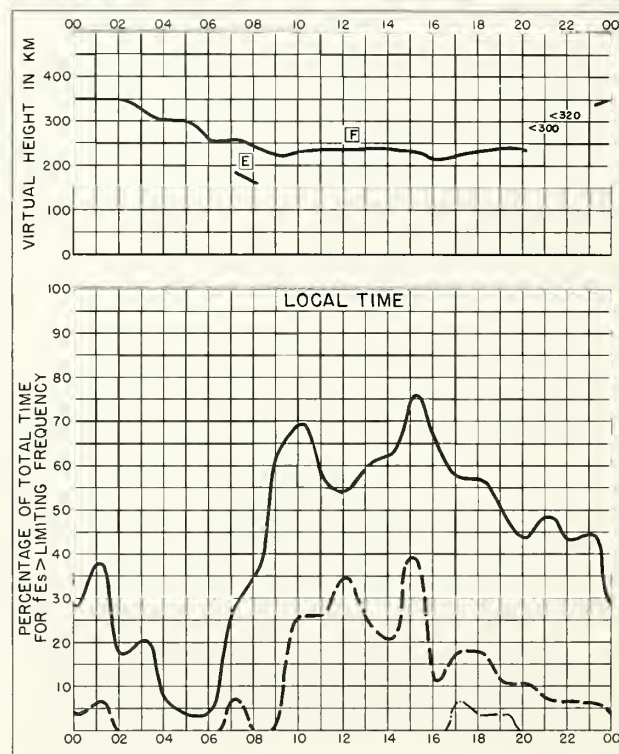


Fig. 72. FALKLAND IS.

JUNE 1958

NBS 490



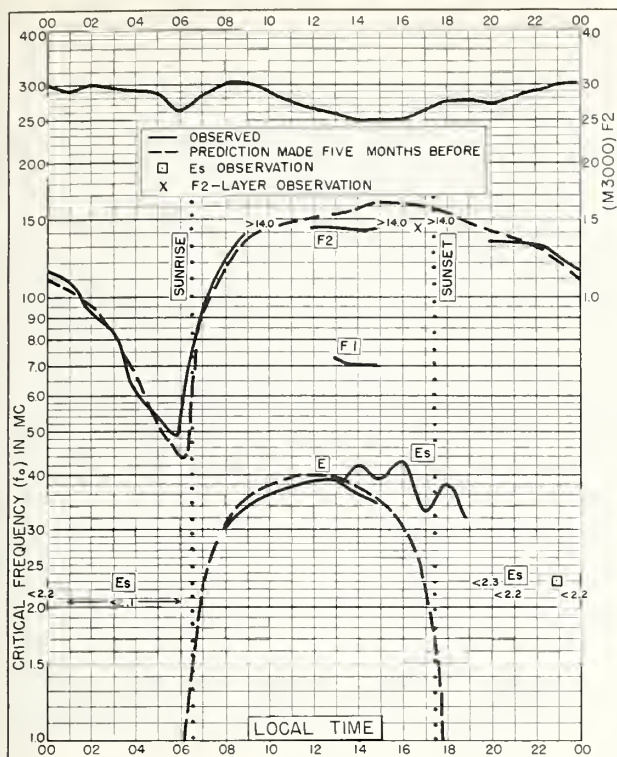


Fig. 73. SAO PAULO, BRAZIL  
23.5°S, 46.5°W

MAY 1958

NBS 503

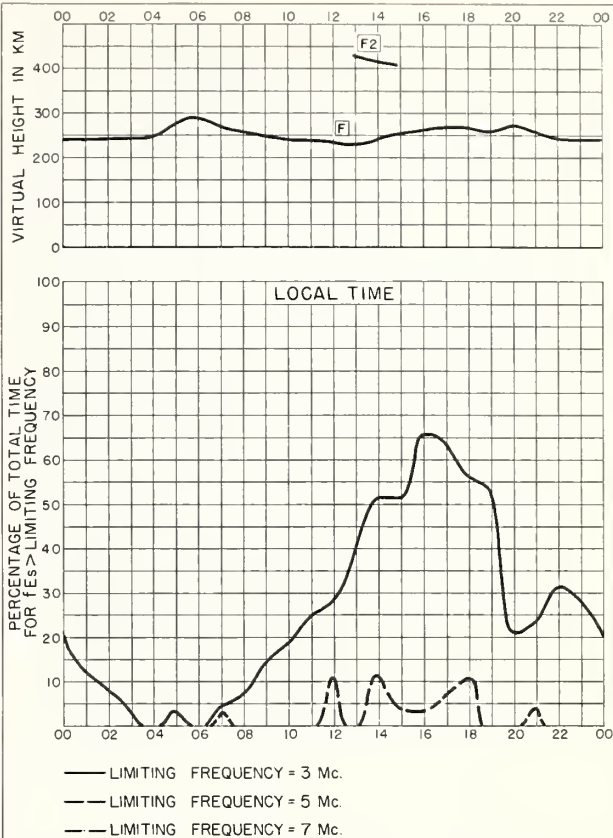


Fig. 74. SAO PAULO, BRAZIL

MAY 1958

NBS 490

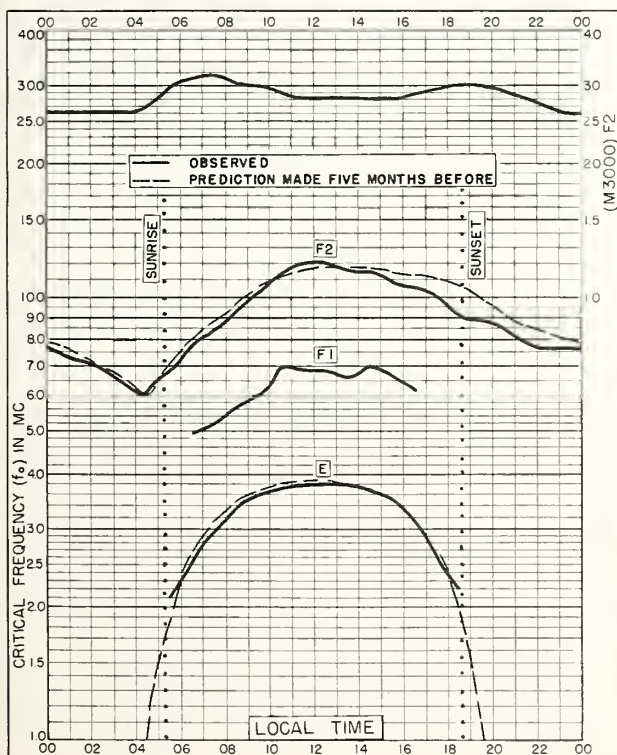


Fig. 75. SCHWARZENBURG, SWITZERLAND  
46.8°N, 7.3°E

APRIL 1958

NBS 503

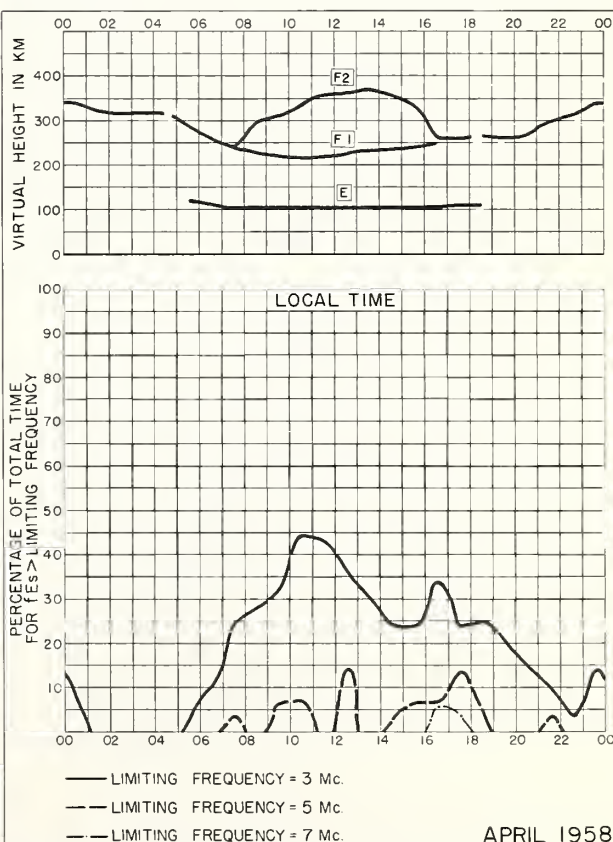


Fig. 76. SCHWARZENBURG, SWITZERLAND

APRIL 1958

NBS 490

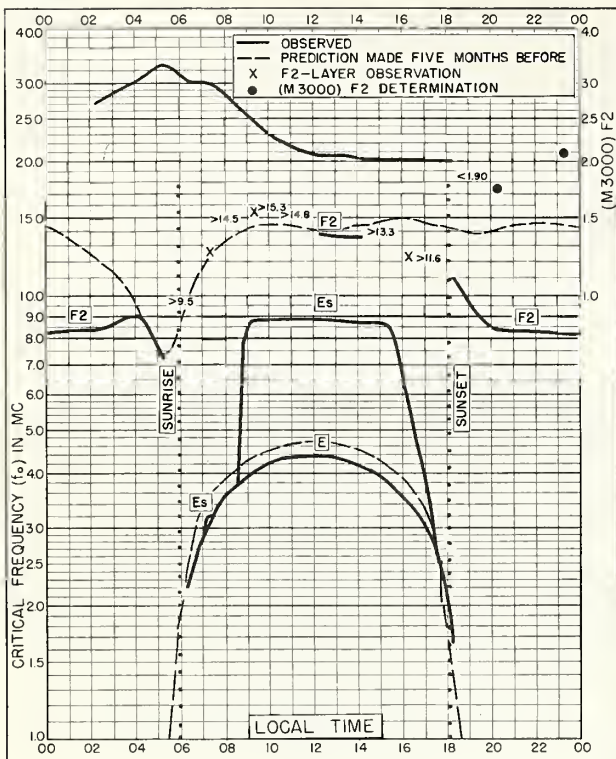


Fig. 77. IBADAN, NIGERIA  
7.4°N, 3.9°E

APRIL 1958

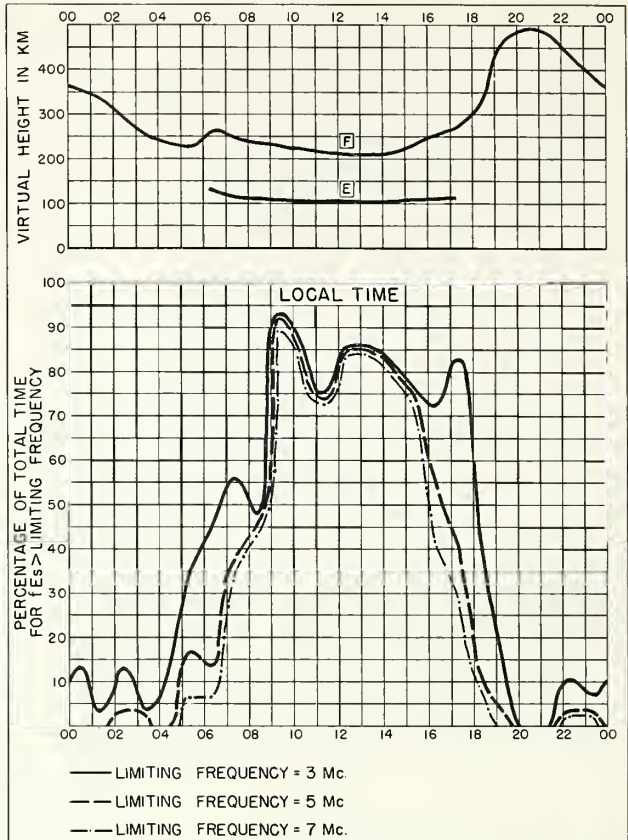


Fig. 78. IBADAN, NIGERIA

APRIL 1958

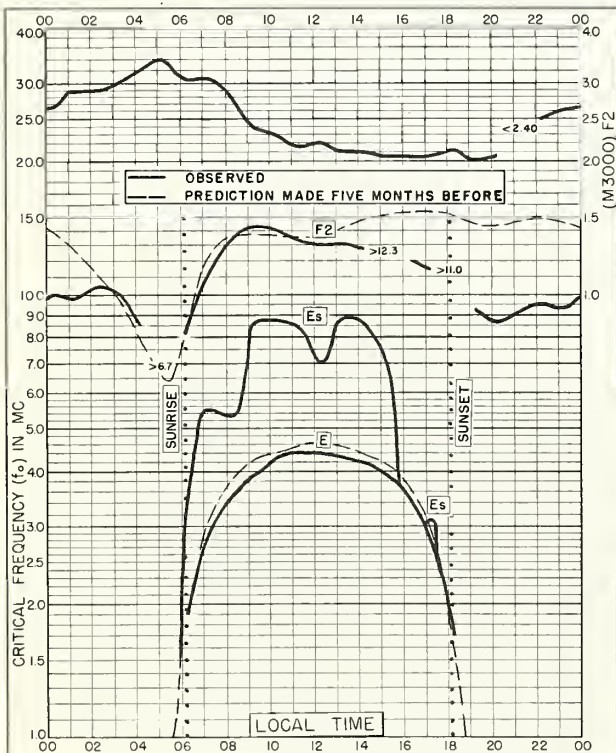


Fig. 79. IBADAN, NIGERIA  
7.4°N, 3.9°E

MARCH 1958

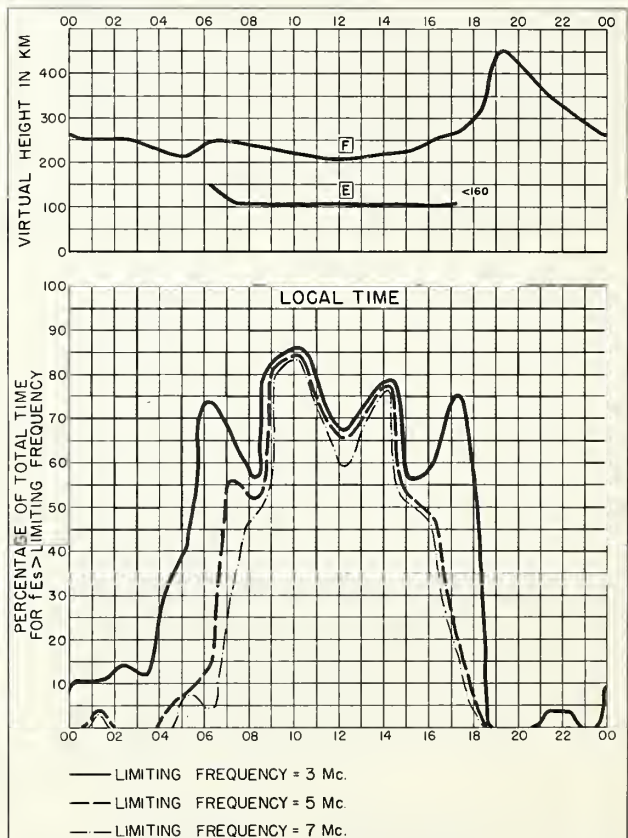


Fig. 80. IBADAN, NIGERIA

MARCH 1958



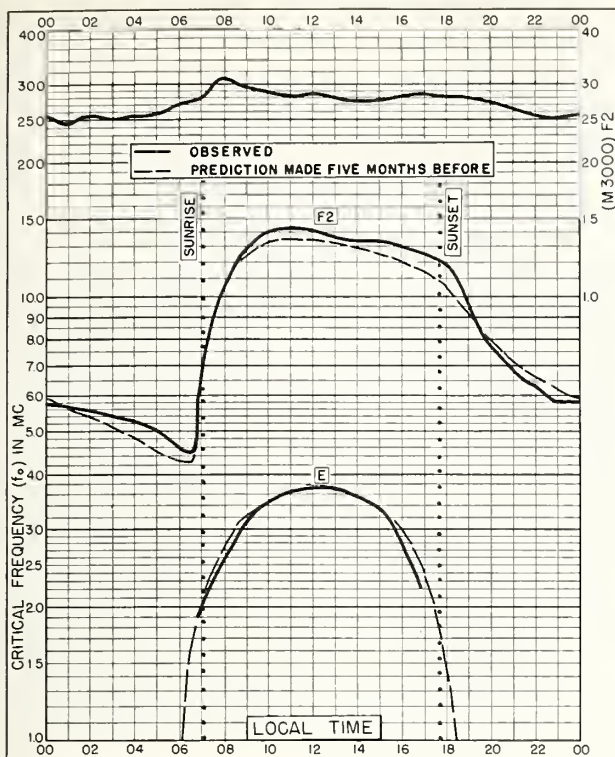


Fig. 81. ROME, ITALY  
41.8°N, 12.5°E

FEBRUARY 1958

Commercial-Standard-Industries, Inc.

NBS 503

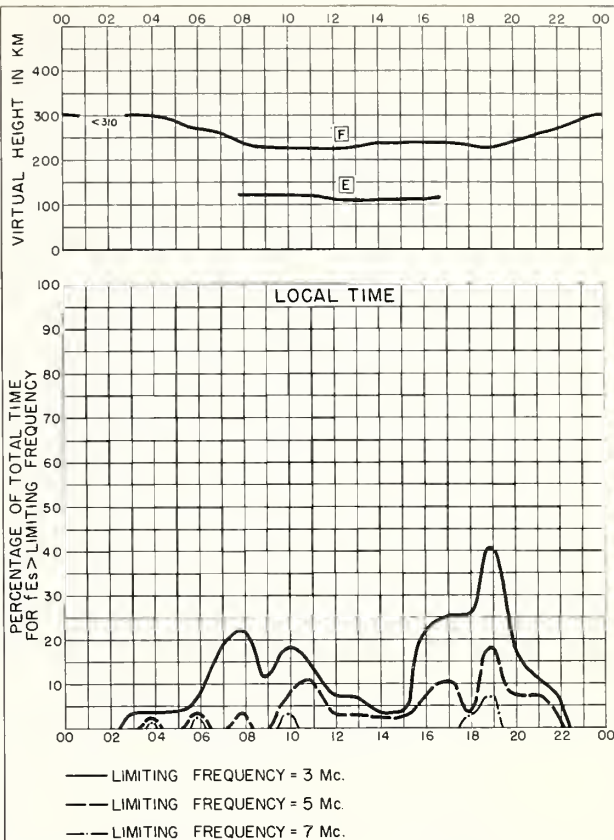


Fig. 82. ROME, ITALY

FEBRUARY 1958

Commercial-Standard-Industries, Inc.

NBS 490

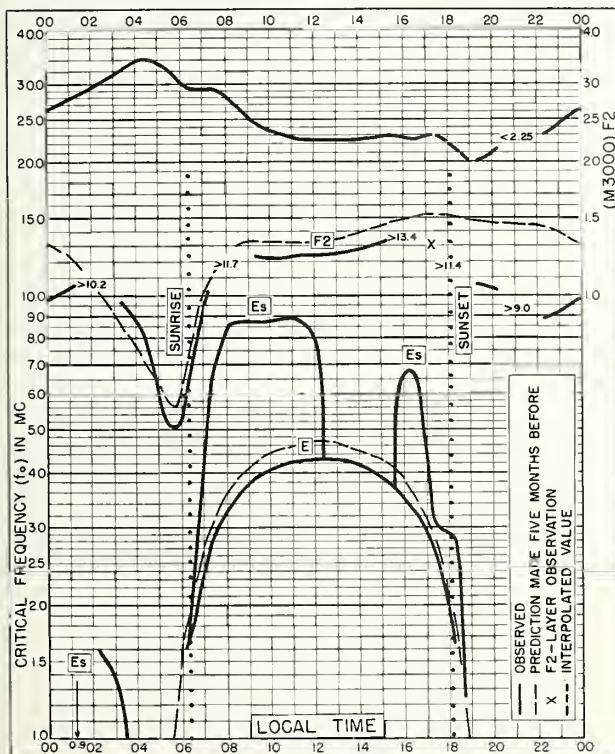


Fig. 83. IBADAN, NIGERIA  
7.4°N, 3.9°E

FEBRUARY 1958

Commercial-Standard-Industries, Inc.

NBS 503

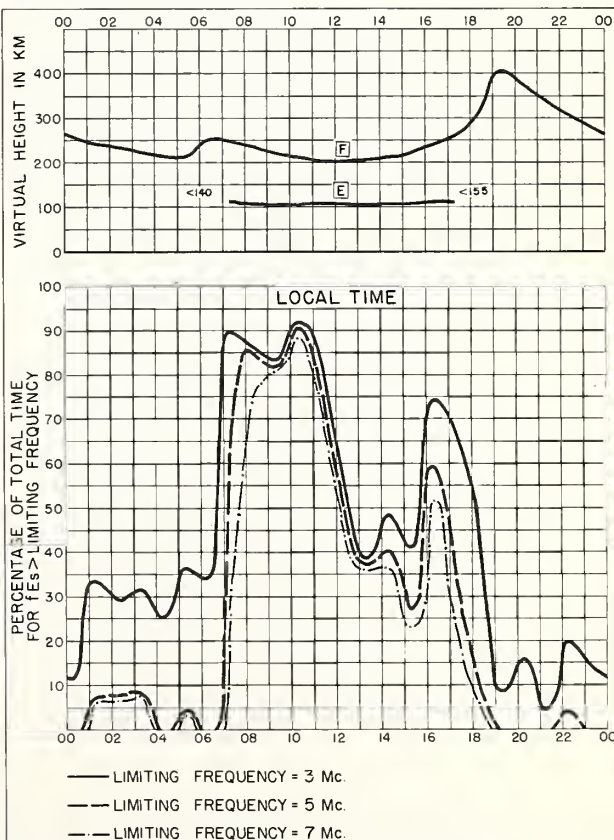


Fig. 84. IBADAN, NIGERIA

FEBRUARY 1958

Commercial-Standard-Industries, Inc.

NBS 490



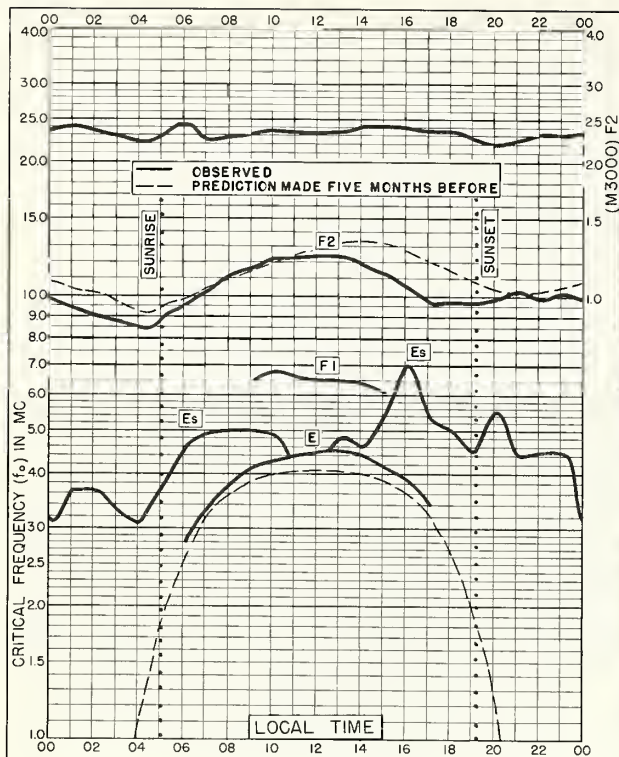


Fig. 85. CONCEPCION, CHILE  
36.6°S, 73.0°W

JANUARY 1958

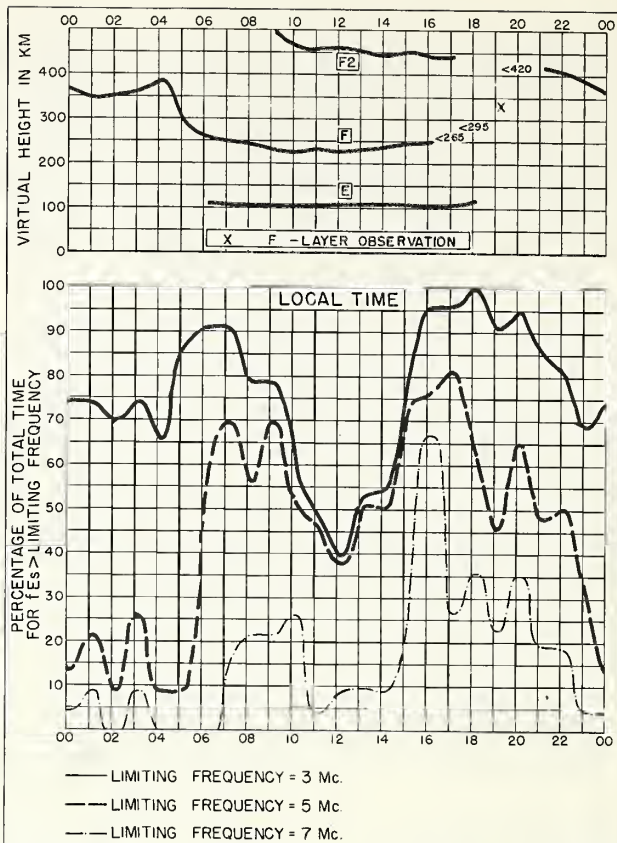


Fig. 86. CONCEPCION, CHILE

JANUARY 1958

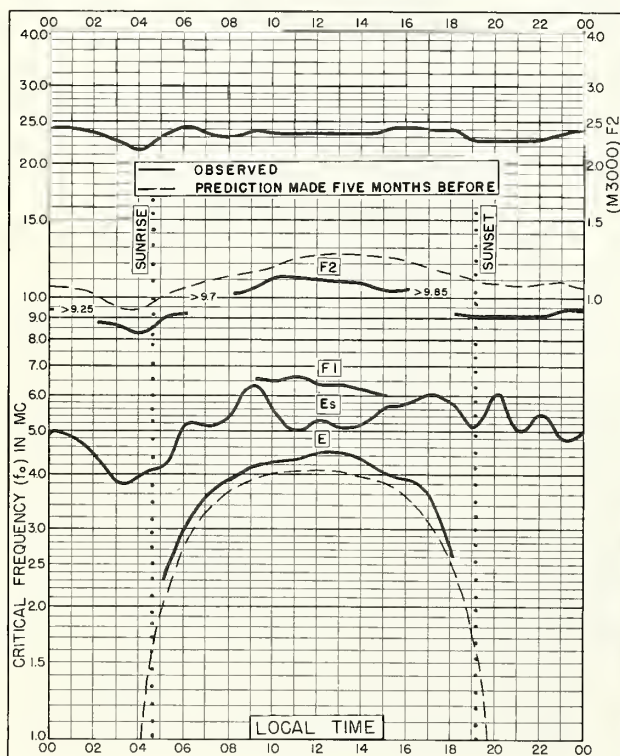


Fig. 87. CONCEPCION, CHILE  
36.6°S, 73.0°W

DECEMBER 1957

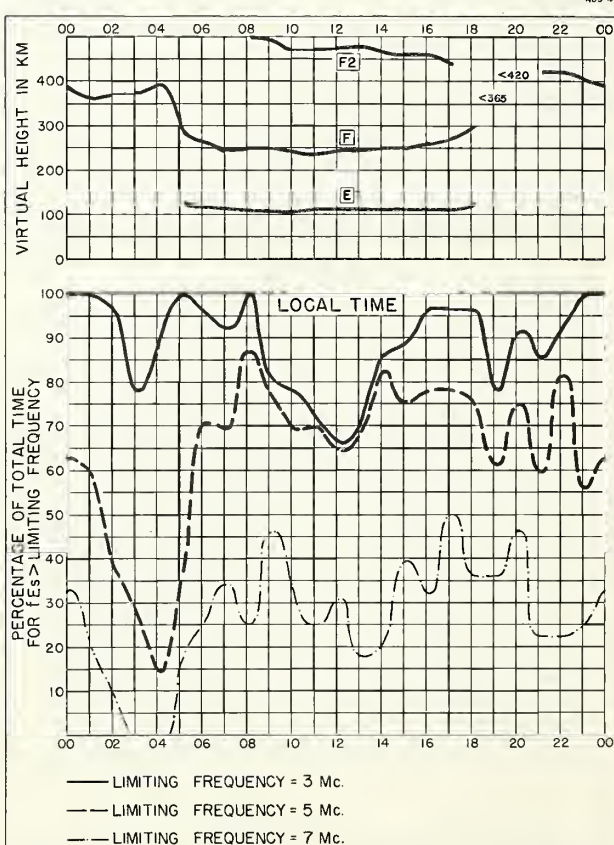


Fig. 88. CONCEPCION, CHILE

DECEMBER 1957

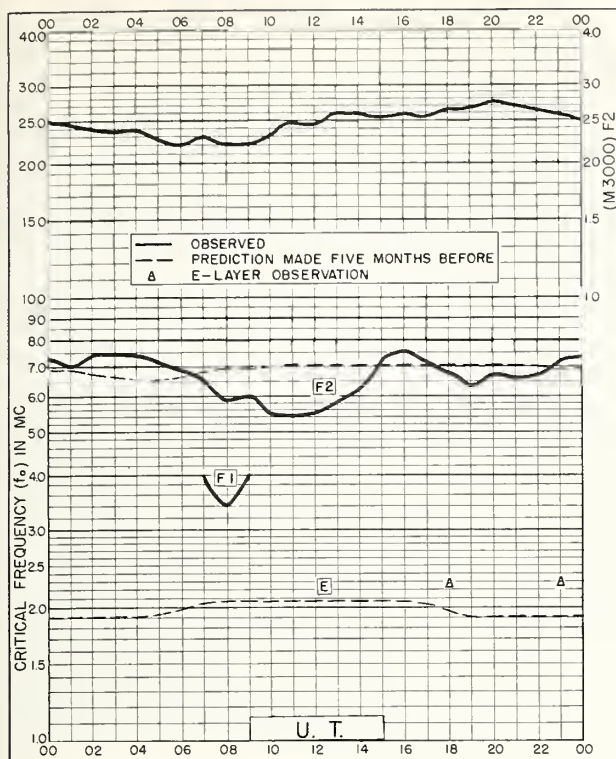


Fig. 89. POLE STATION  
90.0°S

OCTOBER 1957

NBS 503

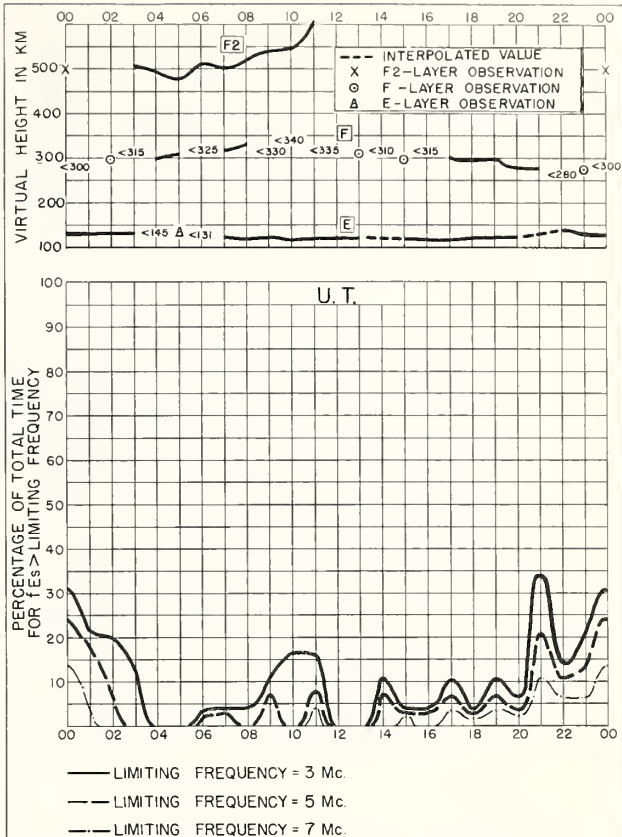


Fig. 90. POLE STATION

OCTOBER 1957

NBS 490

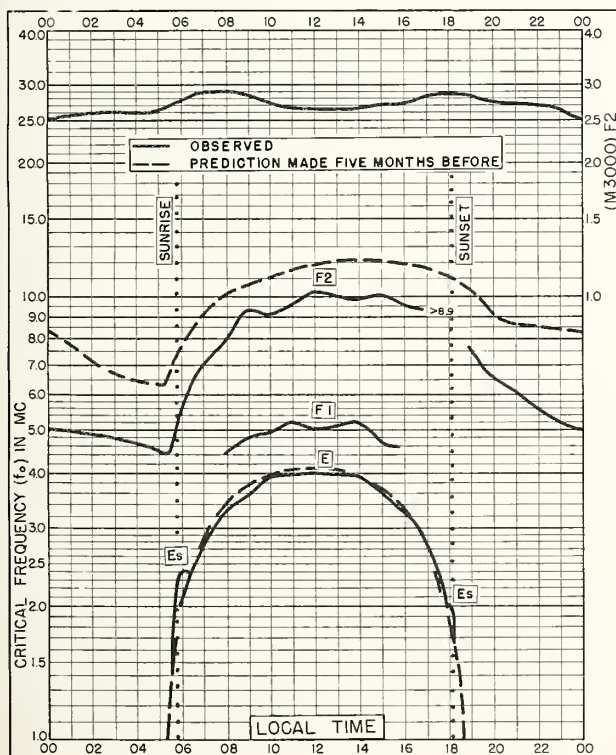


Fig. 91. SAN FRANCISCO, CALIFORNIA

37.4°N, 122.2°W

SEPTEMBER 1957

NBS 503

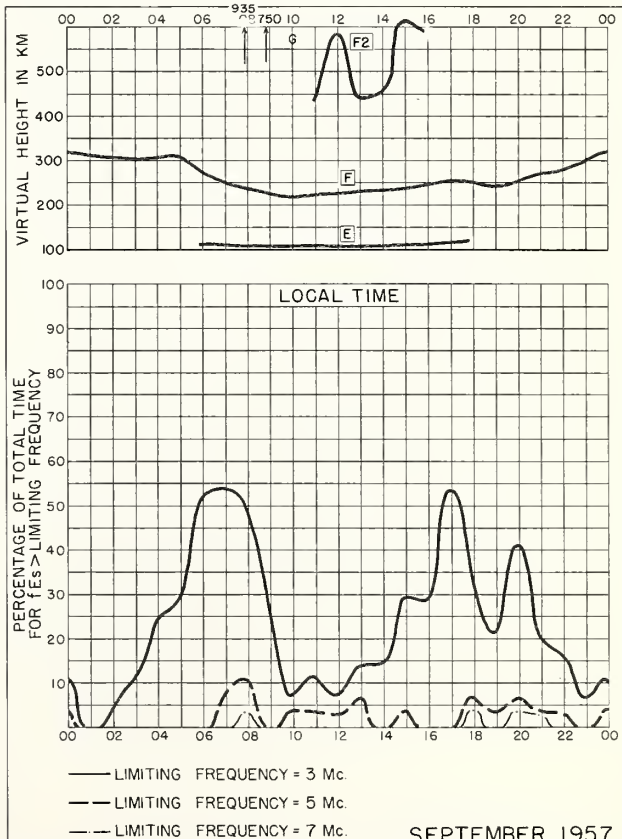


Fig. 92. SAN FRANCISCO, CALIFORNIA

SEPTEMBER 1957

NBS 490



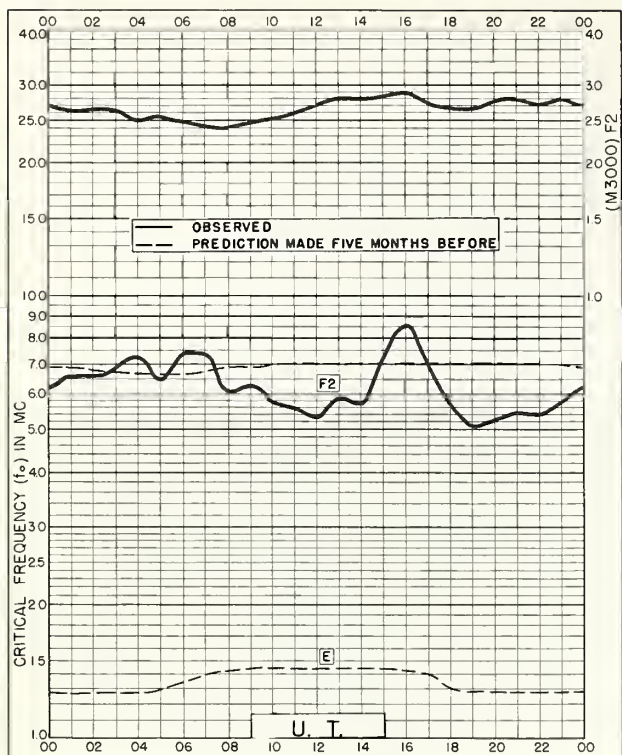


Fig. 93. POLE STATION  
90.0°S

SEPTEMBER 1957

NBS 503

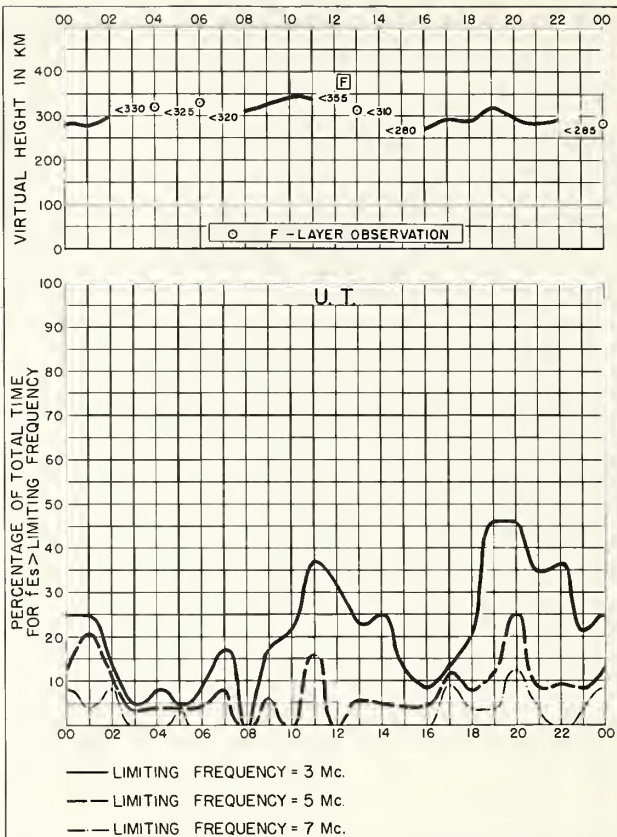


Fig. 94. POLE STATION

SEPTEMBER 1957

NBS 490

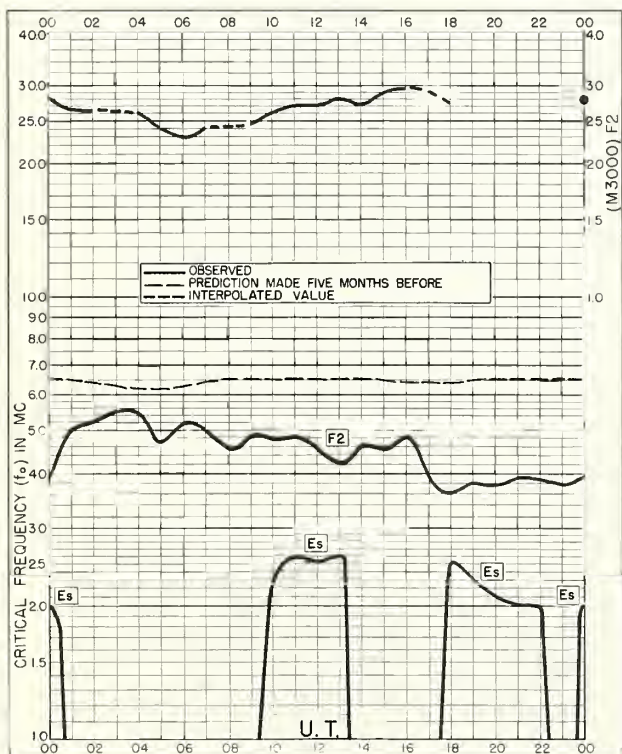


Fig. 95. POLE STATION  
90.0°S

AUGUST 1957

NBS 503

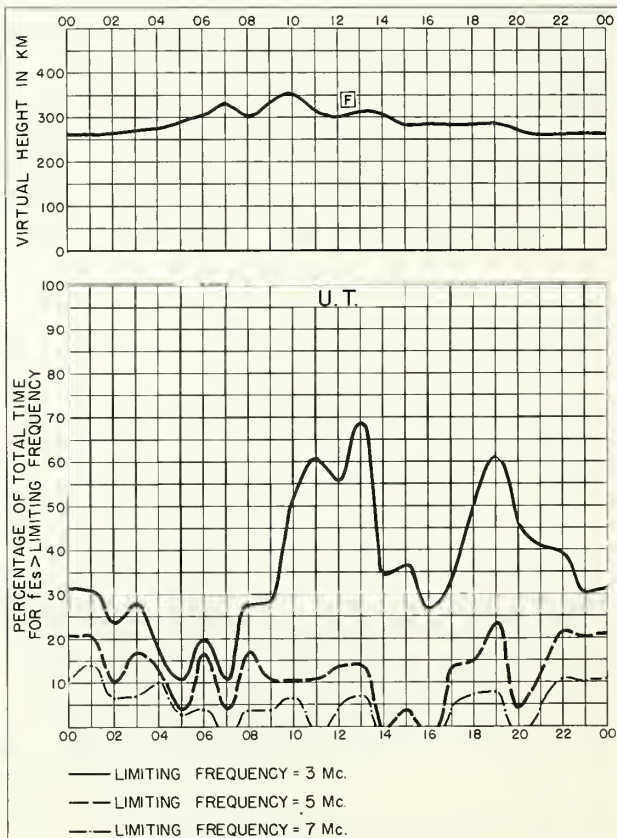


Fig. 96. POLE STATION

AUGUST 1957

NBS 490



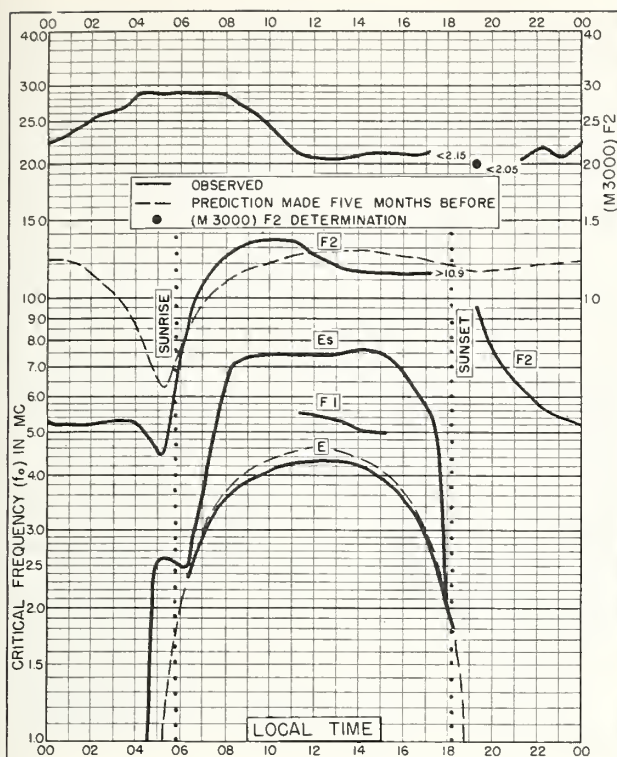


Fig. 97. IBADAN, NIGERIA  
7.4°N, 3.9°E

JUNE 1957

NBS 503

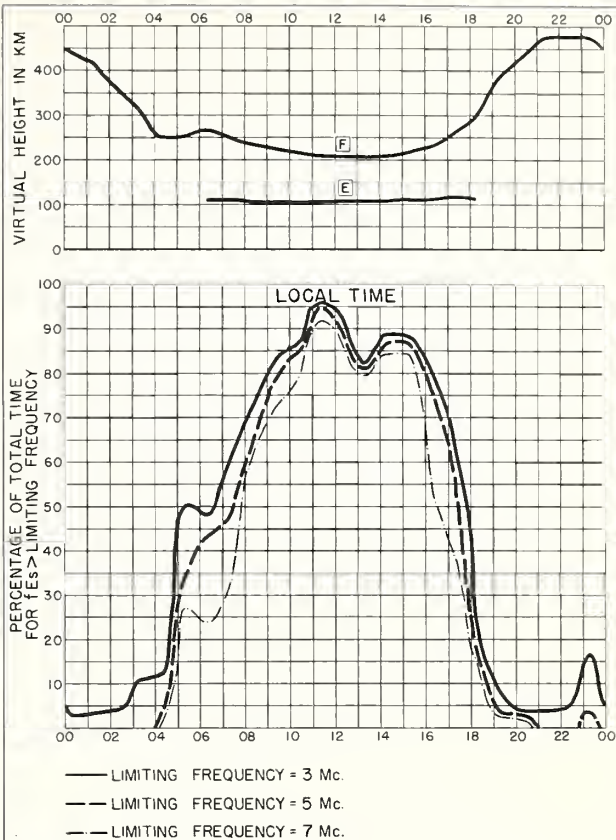


Fig. 98. IBADAN, NIGERIA

JUNE 1957

NBS 490

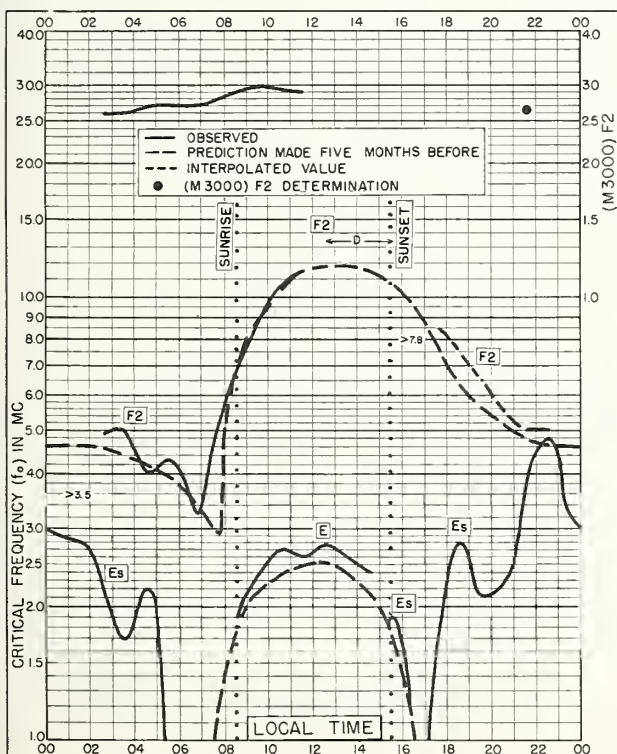


Fig. 99. MACQUARIE I.  
54.5°S, 159.0°E

JUNE 1957

NBS 503

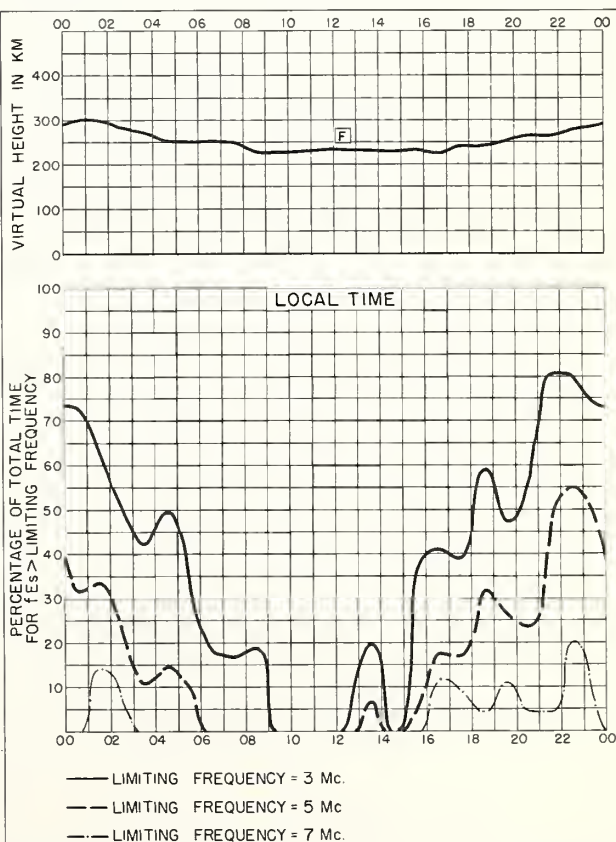


Fig. 100. MACQUARIE I.

JUNE 1957

NBS 490

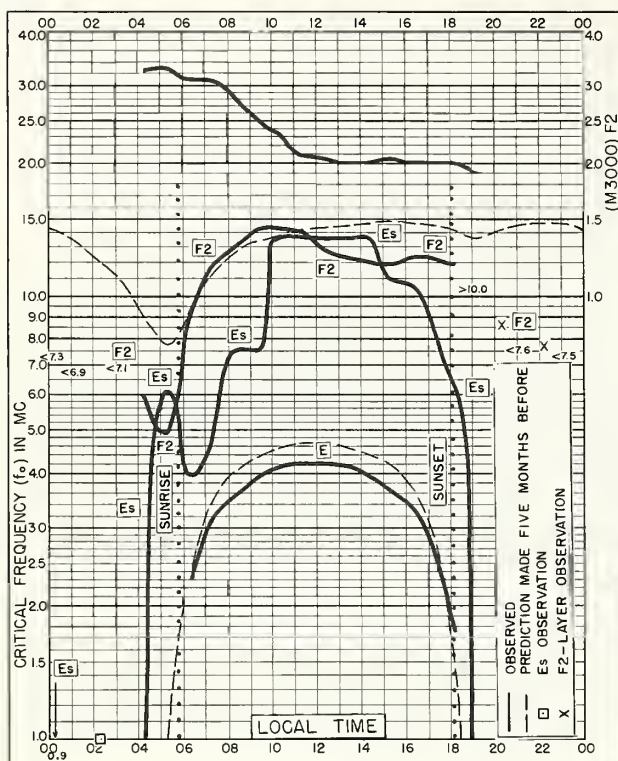


Fig. 101. IBADAN, NIGERIA  
7.4°N, 3.9°E

MAY 1957

NBS 503

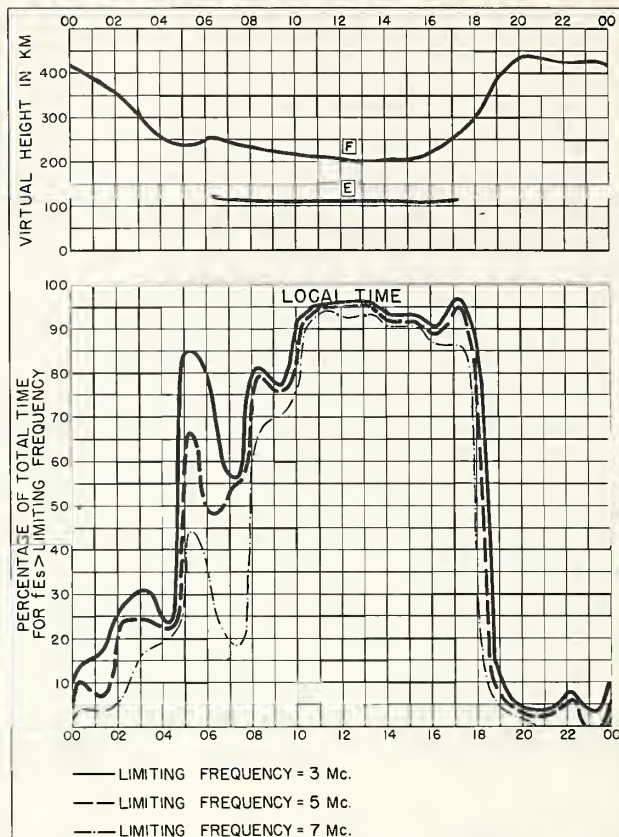


Fig. 102. IBADAN, NIGERIA

MAY 1957

NBS 490

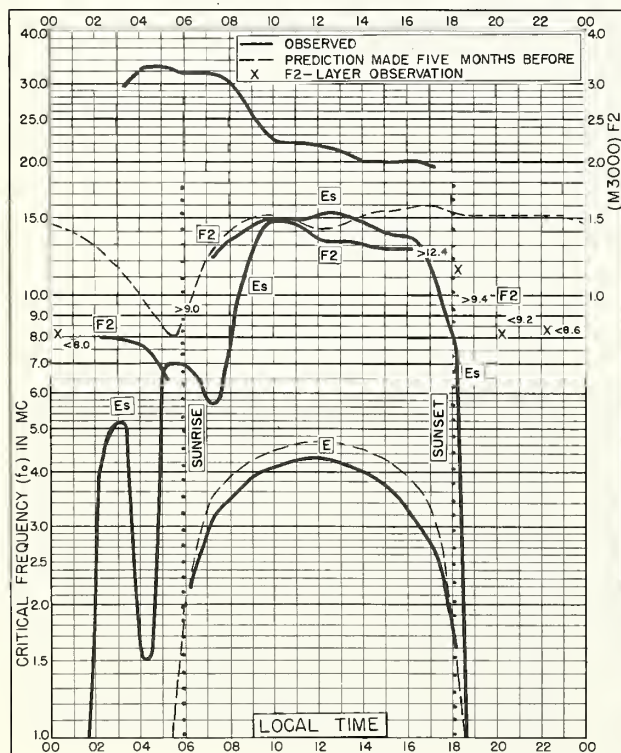


Fig. 103. IBADAN, NIGERIA  
7.4°N, 3.9°E

APRIL 1957

NBS 503

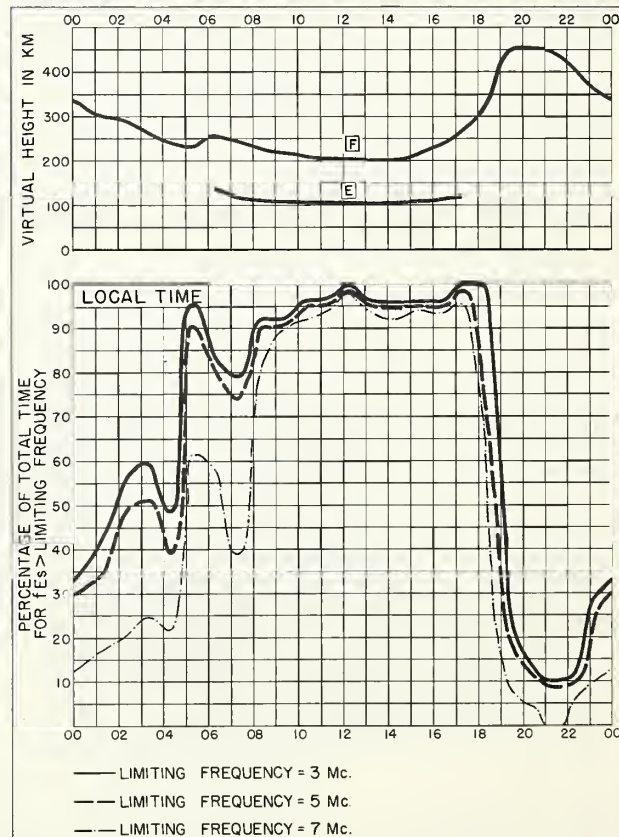


Fig. 104. IBADAN, NIGERIA

APRIL 1957

NBS 490



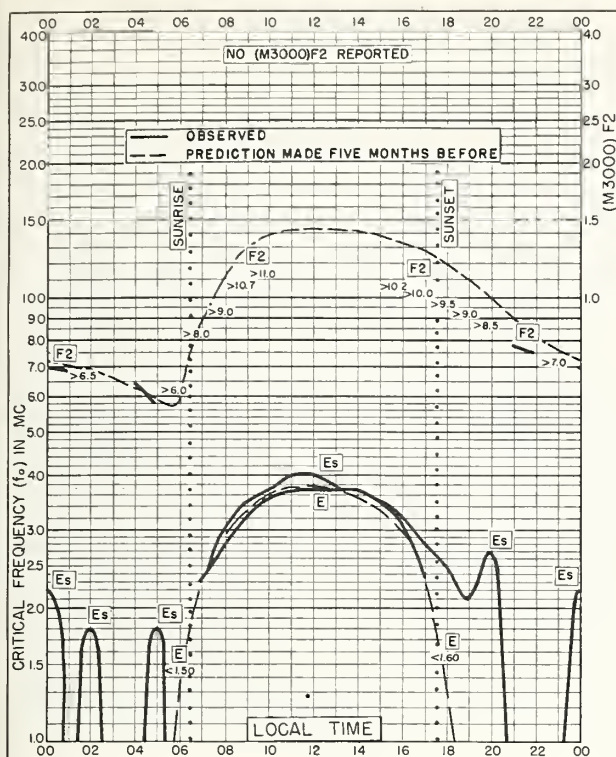


Fig. 105. CANBERRA, AUSTRALIA  
35.3°S, 149.0°E

APRIL 1957

NBS 503

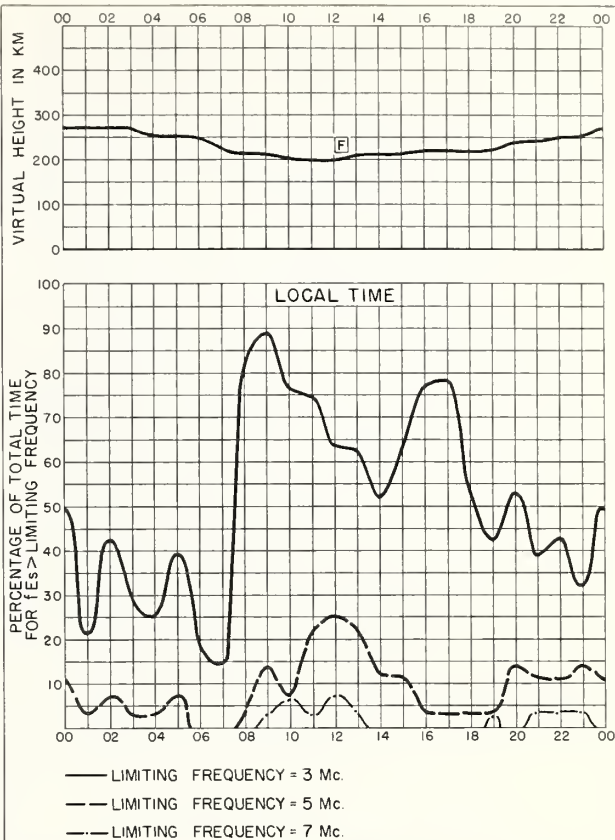


Fig. 106. CANBERRA, AUSTRALIA

APRIL 1957

NBS 490

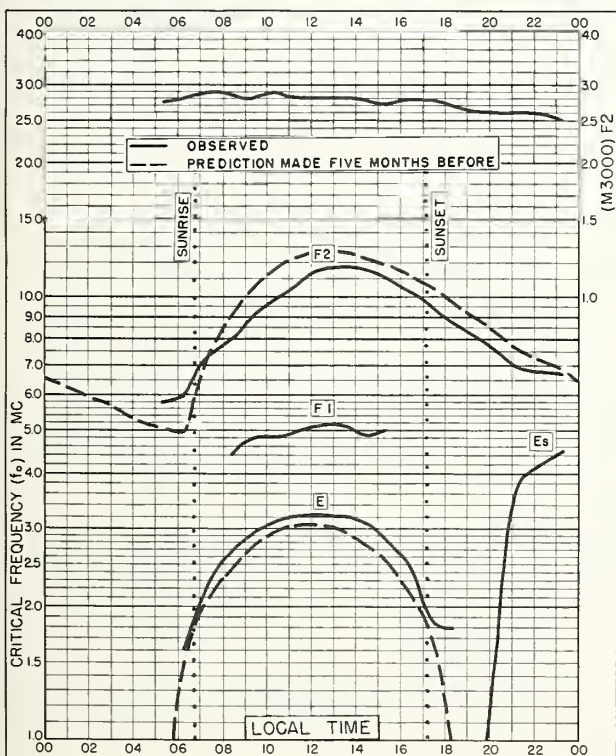


Fig. 107. CAMPBELL I.  
52.5°S, 169.2°E

APRIL 1957

NBS 503

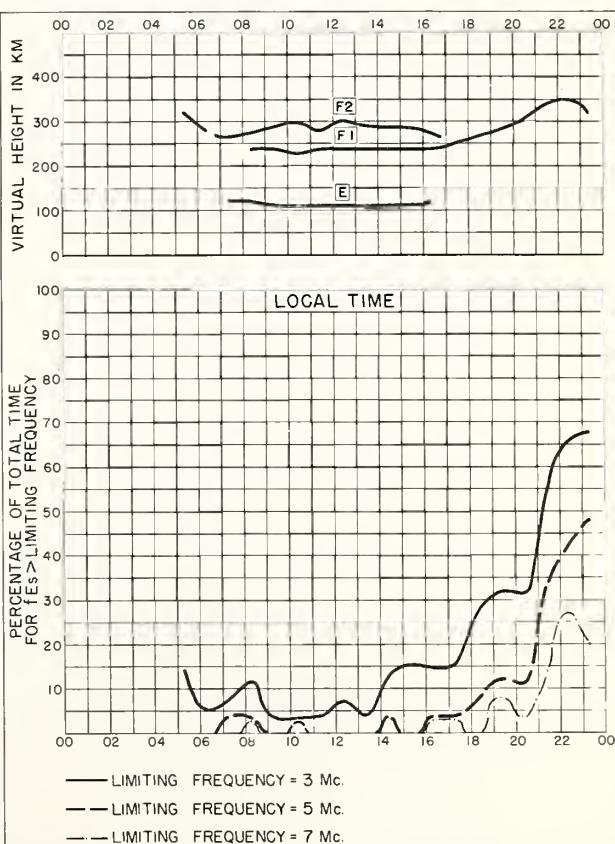
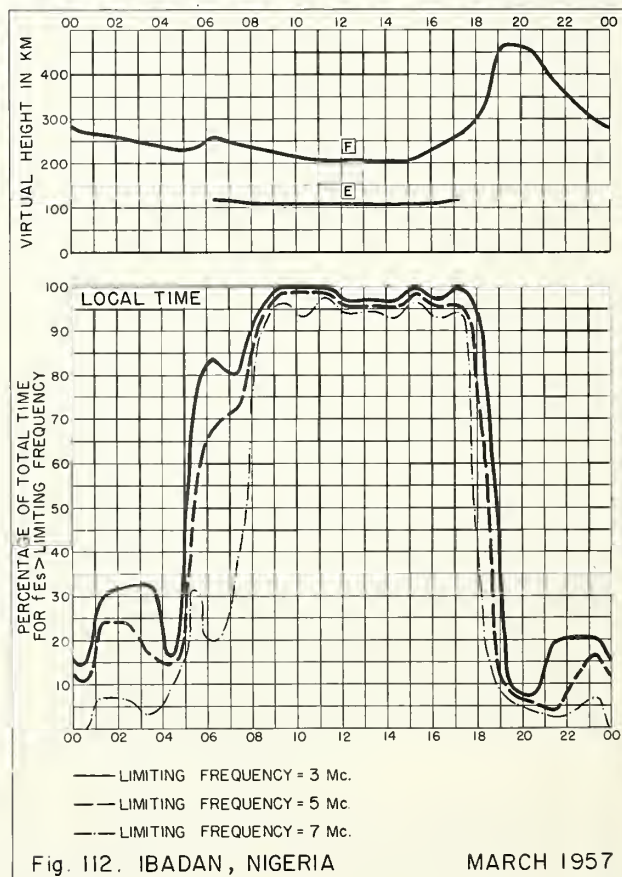
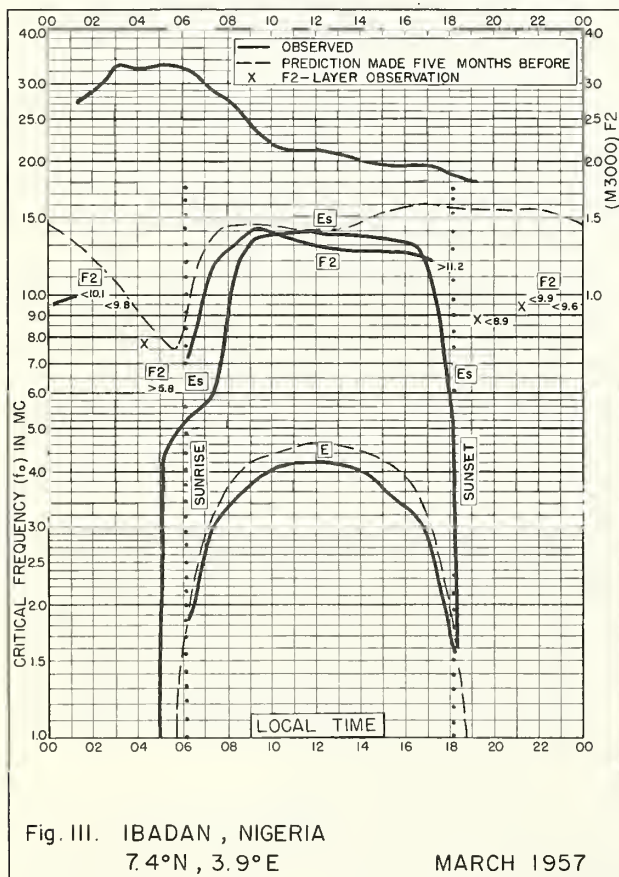
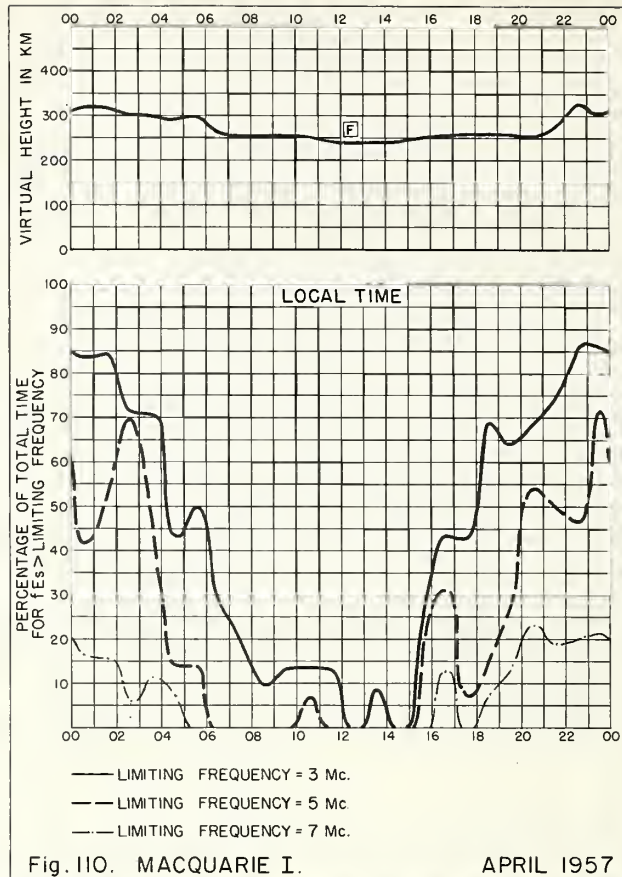
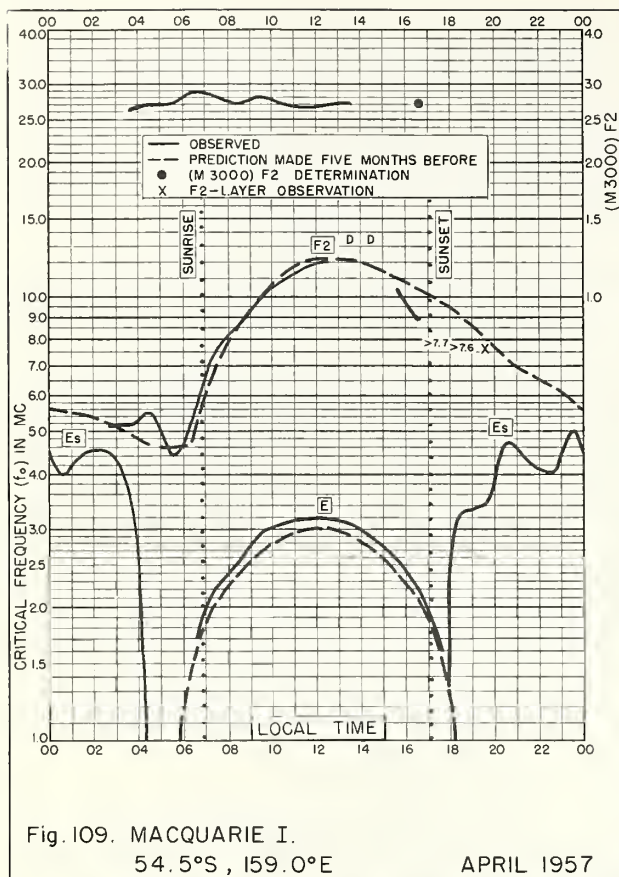


Fig. 108. CAMPBELL I.

APRIL 1957

NBS 490





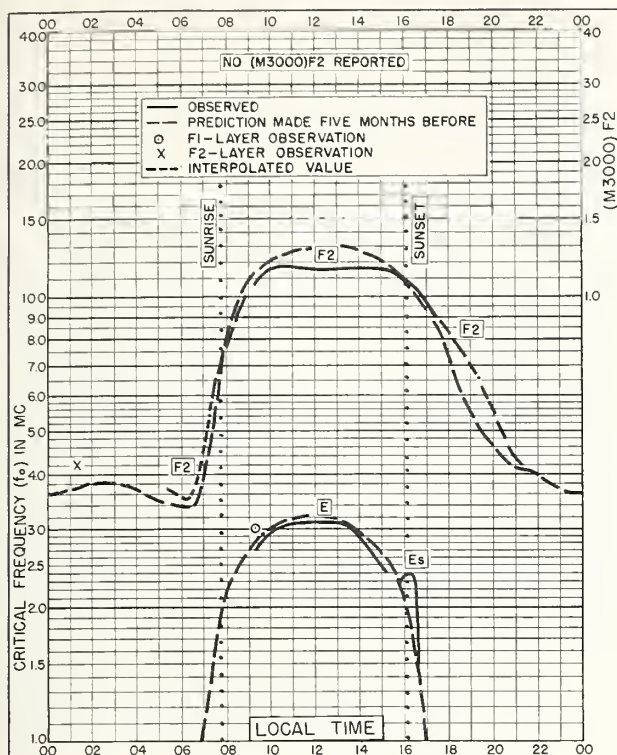


Fig. 113. BUDAPEST, HUNGARY  
47.4°N, 19.2°E  
DECEMBER 1956

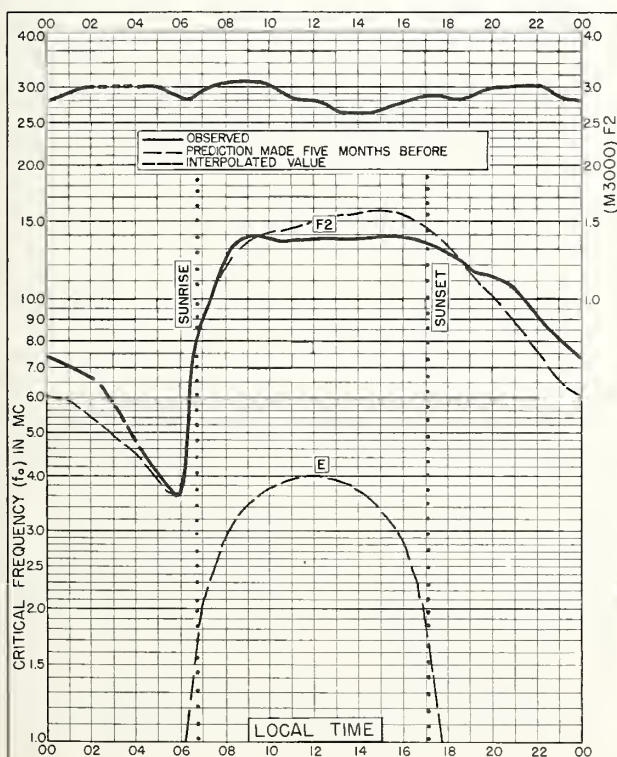


Fig. 115. DELHI, INDIA  
28.6°N, 77.1°E  
DECEMBER 1956

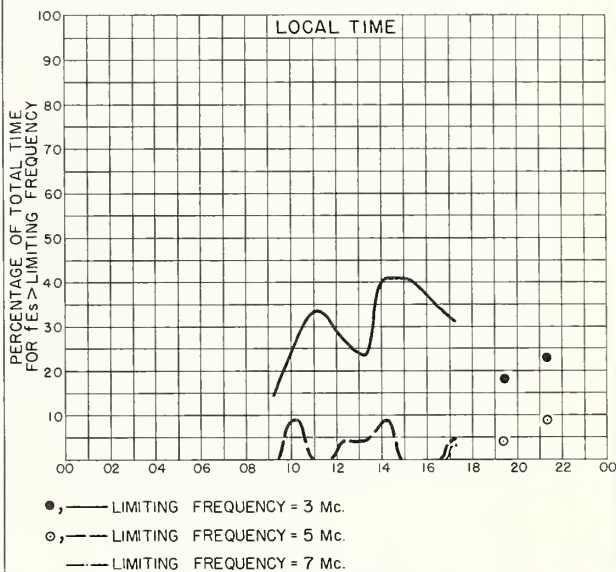
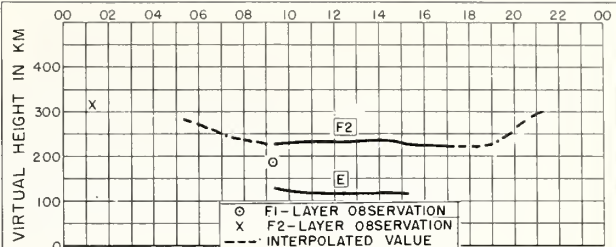


Fig. 114. BUDAPEST, HUNGARY  
DECEMBER 1956

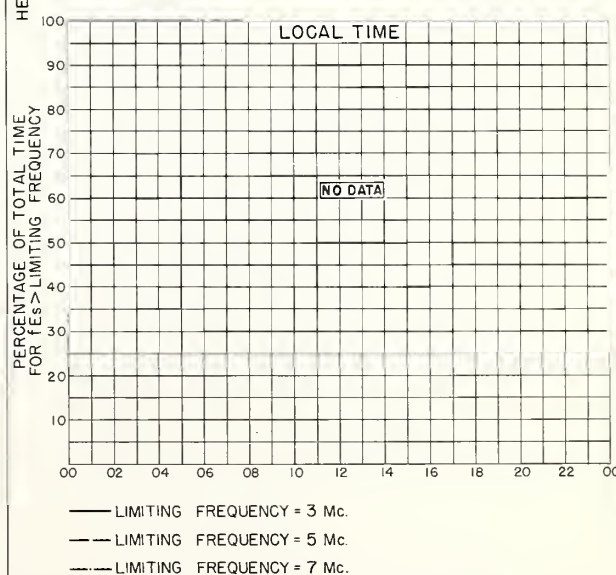
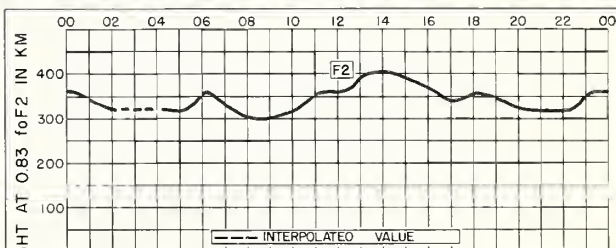


Fig. 116. DELHI, INDIA  
DECEMBER 1956



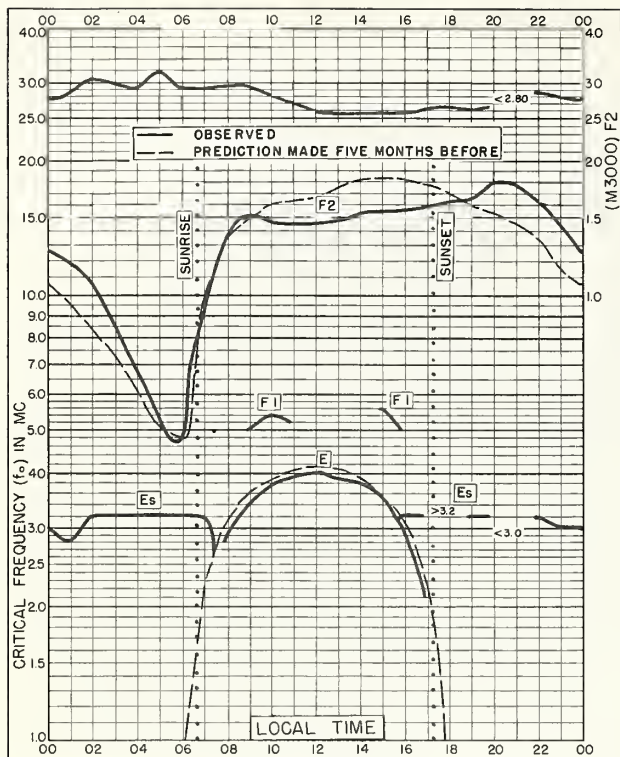


Fig. 117. AHMEDABAD, INDIA  
23.0°N, 72.6°E

DECEMBER 1956

NBS 503

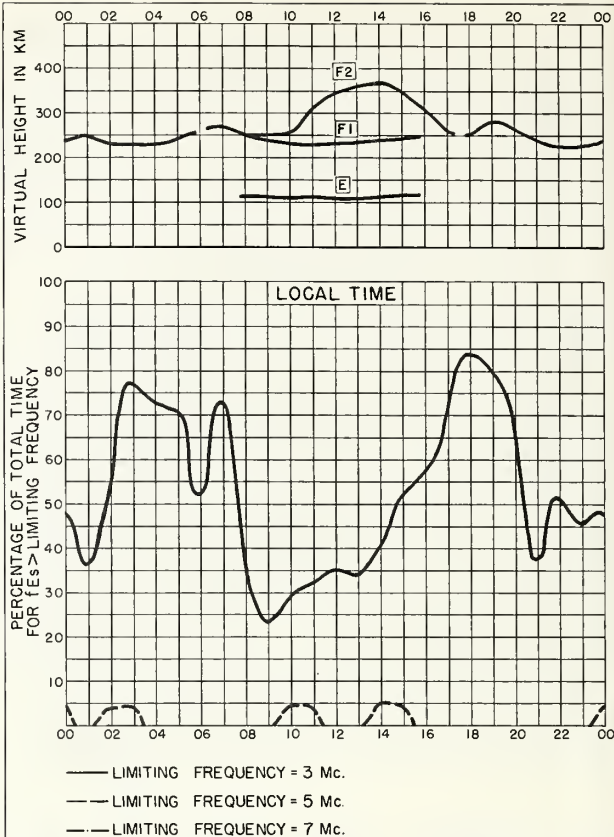


Fig. 118. AHMEDABAD, INDIA

DECEMBER 1956

NBS 490

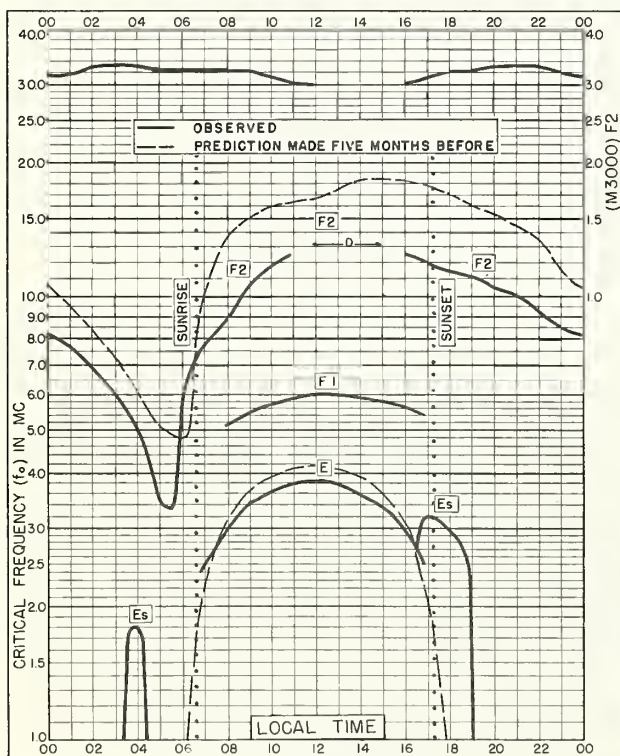


Fig. 119. CALCUTTA, INDIA  
22.9°N, 88.5°E

DECEMBER 1956

NBS 503

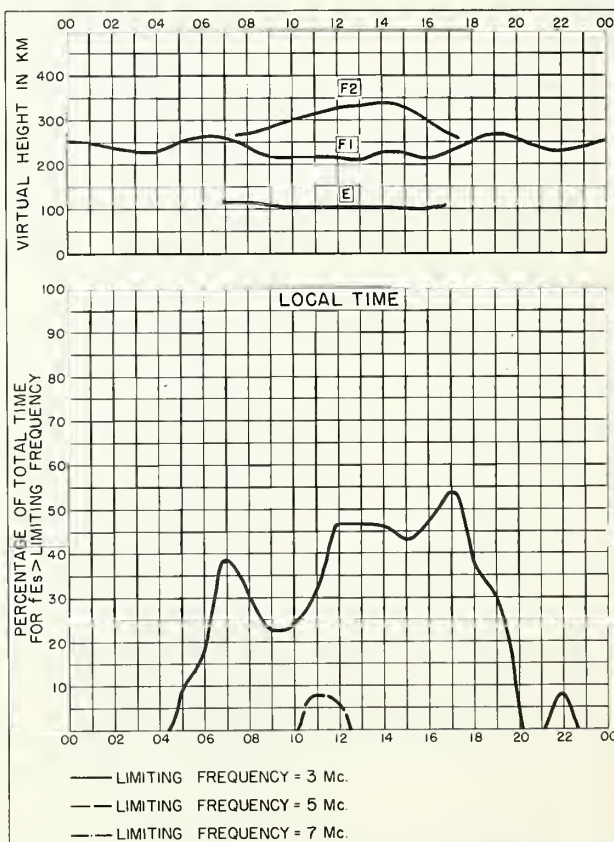


Fig. 120. CALCUTTA, INDIA

DECEMBER 1956

NBS 490



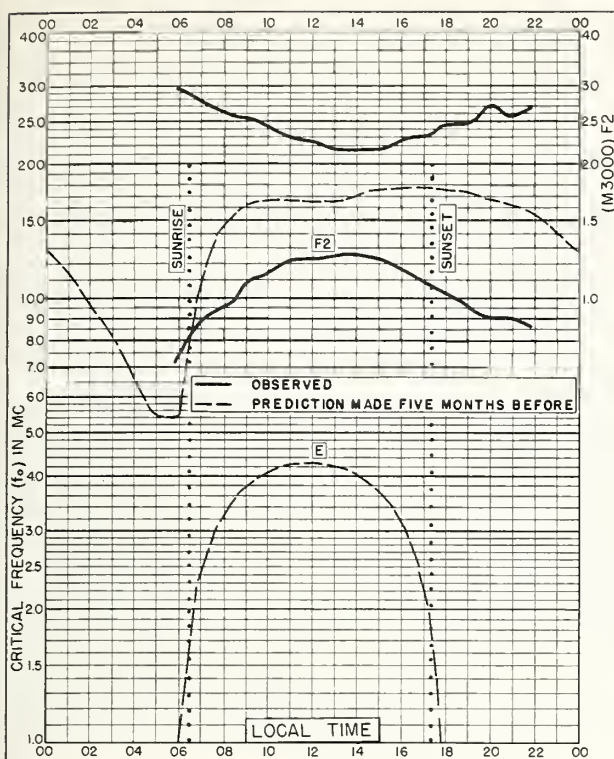


Fig. 121. BOMBAY, INDIA  
19.0°N, 73.0°E

DECEMBER 1956

NBS 503

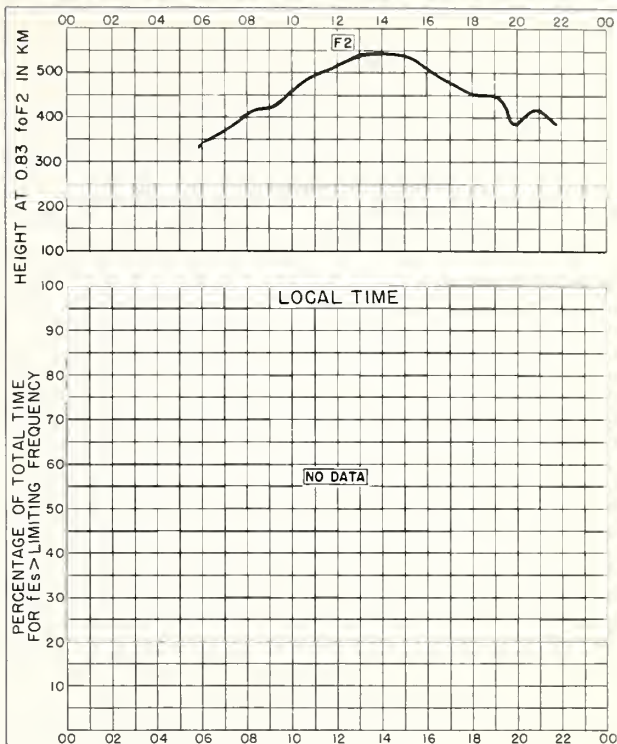


Fig. 122. BOMBAY, INDIA

DECEMBER 1956

NBS 490

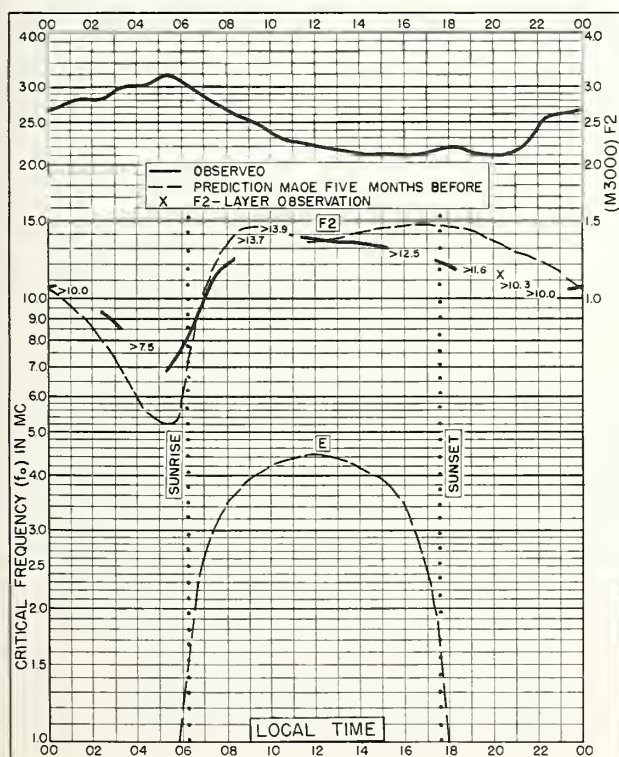


Fig. 123. MADRAS, INDIA  
13.0°N, 80.2°E

DECEMBER 1956

NBS 503

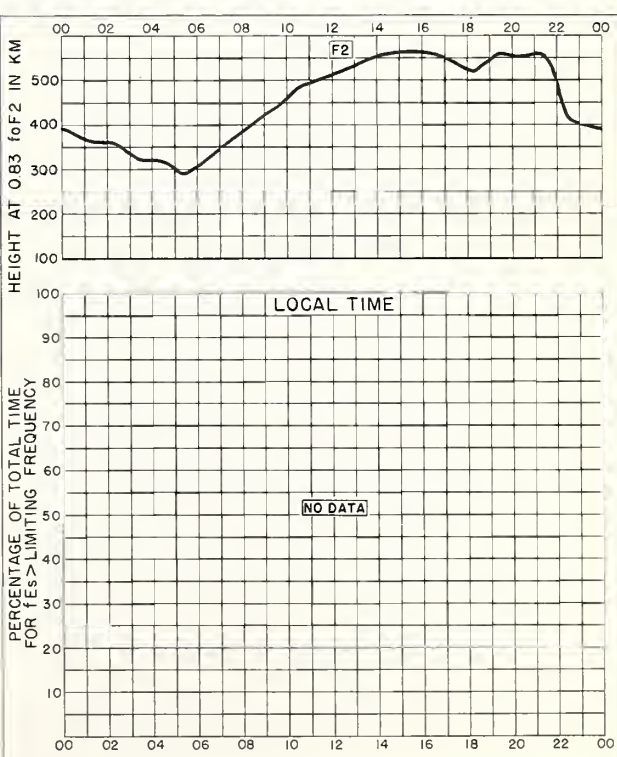
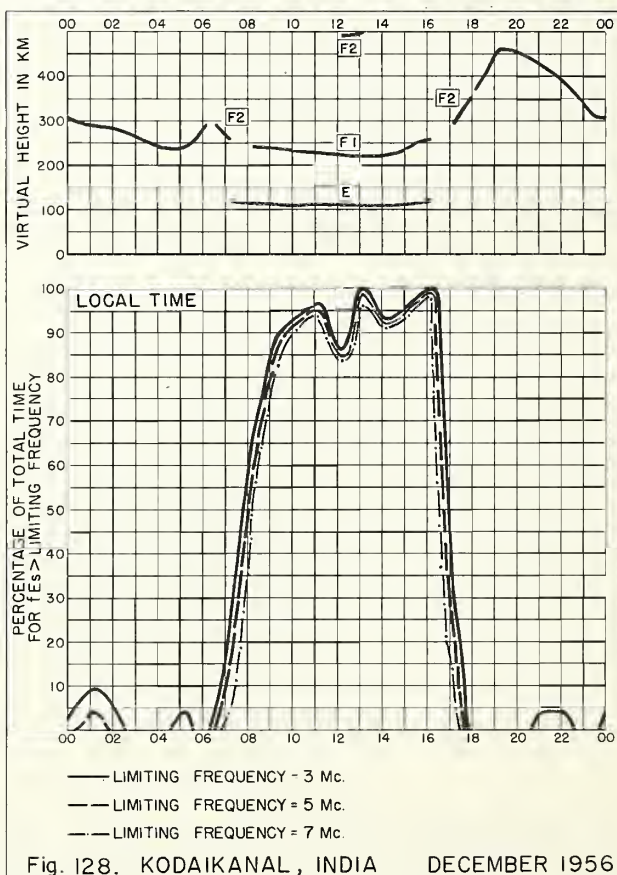
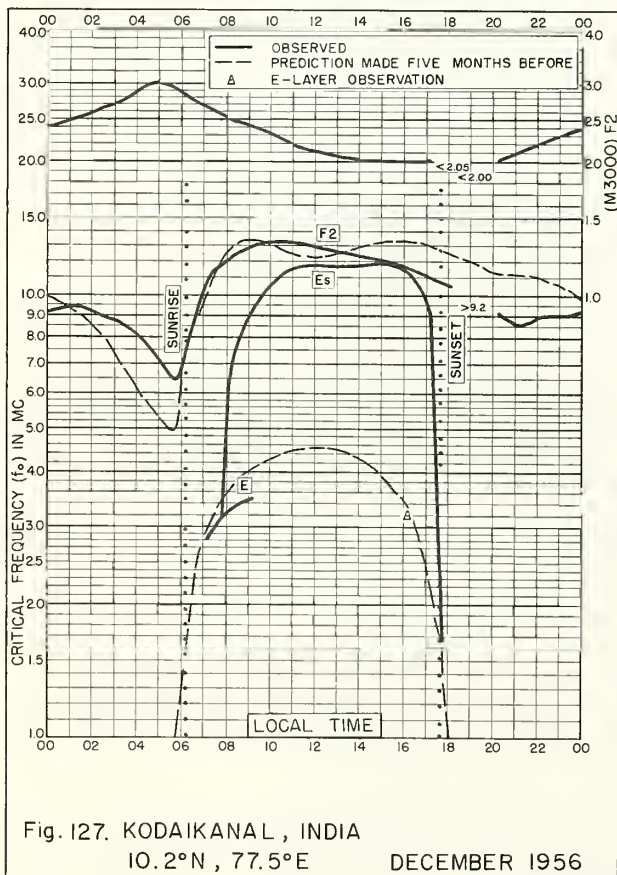
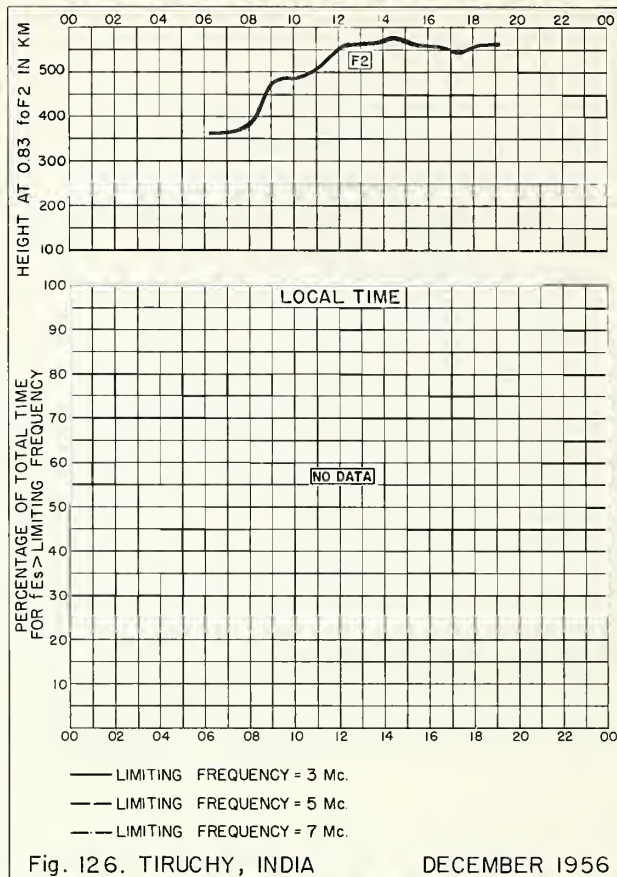
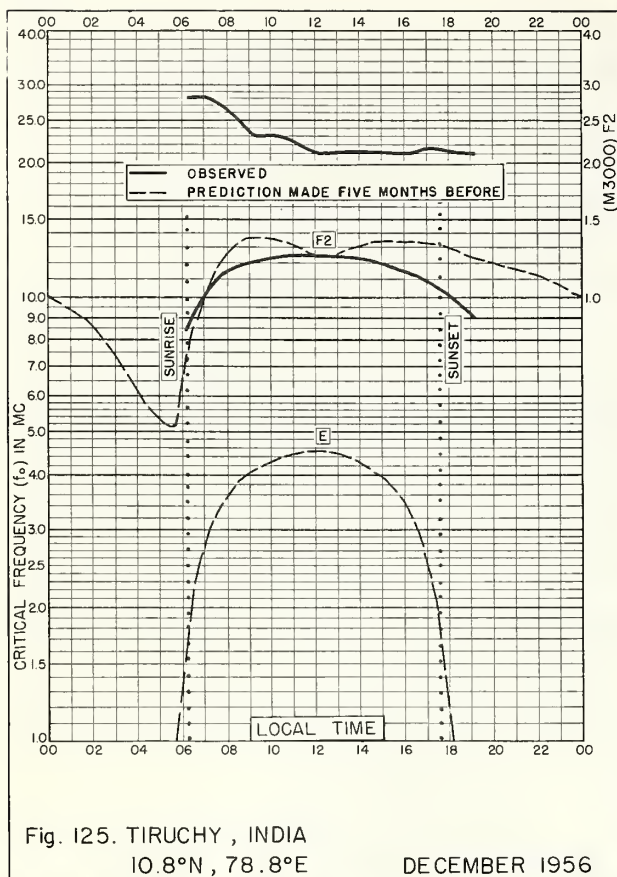


Fig. 124. MADRAS, INDIA

DECEMBER 1956

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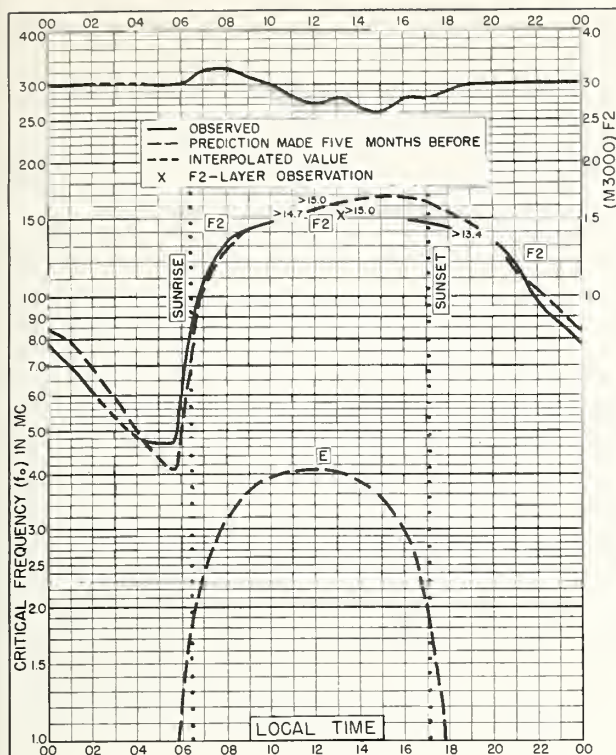


Fig. 129. DELHI, INDIA  
28.6°N, 77.1°E

NOVEMBER 1956

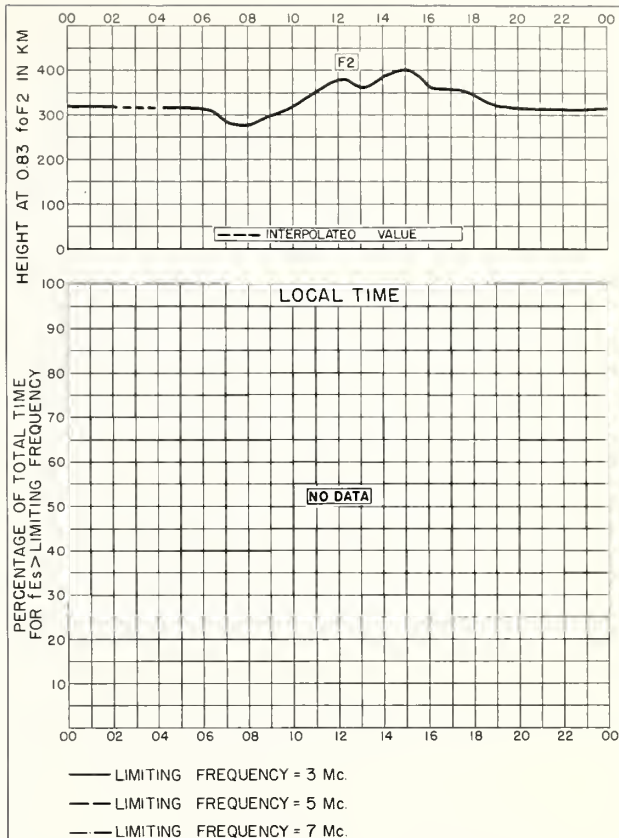


Fig. 130. DELHI, INDIA

NOVEMBER 1956

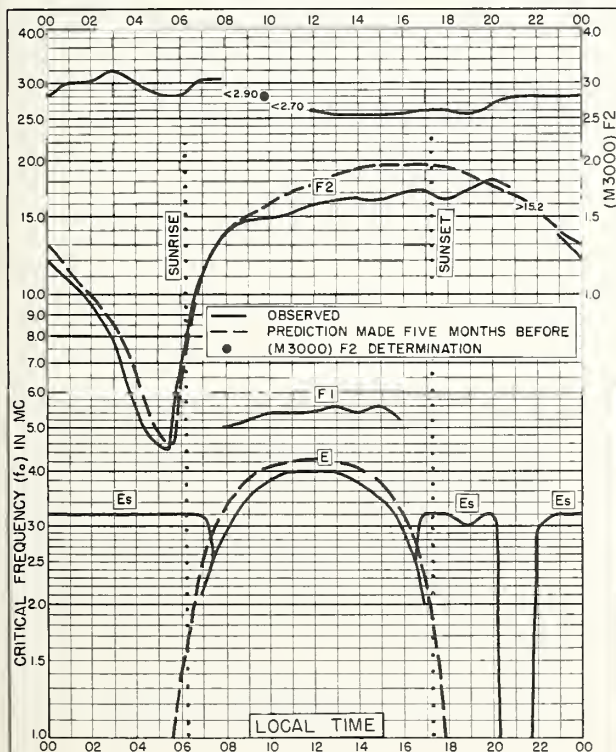


Fig. 131. AHMEDABAD, INDIA  
23.0°N, 72.6°E

NOVEMBER 1956

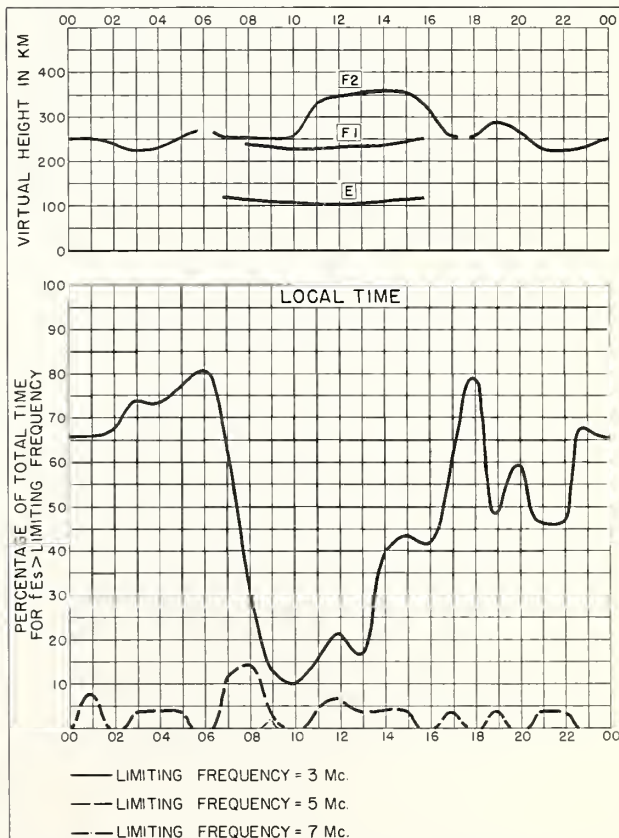


Fig. 132. AHMEDABAD, INDIA

NOVEMBER 1956



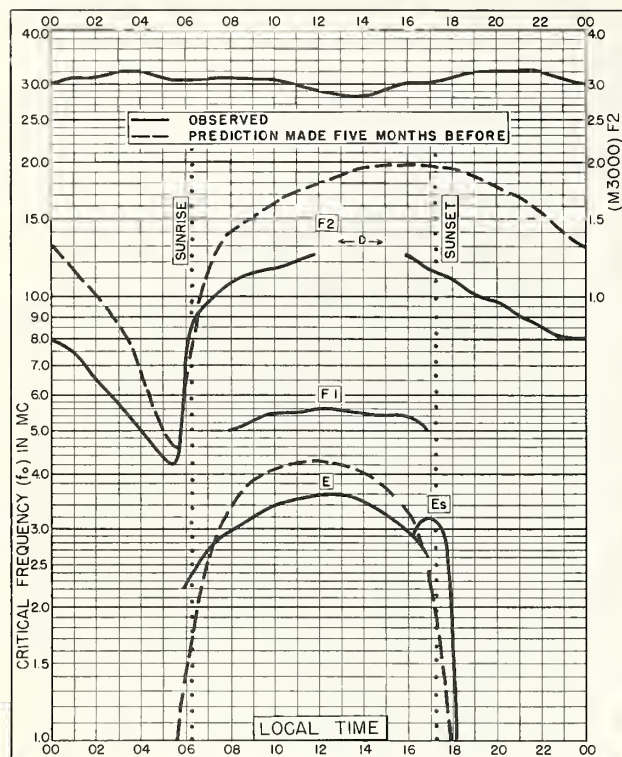


Fig. 133. CALCUTTA, INDIA  
22.9°N, 88.5°E

NOVEMBER 1956

NBS 503

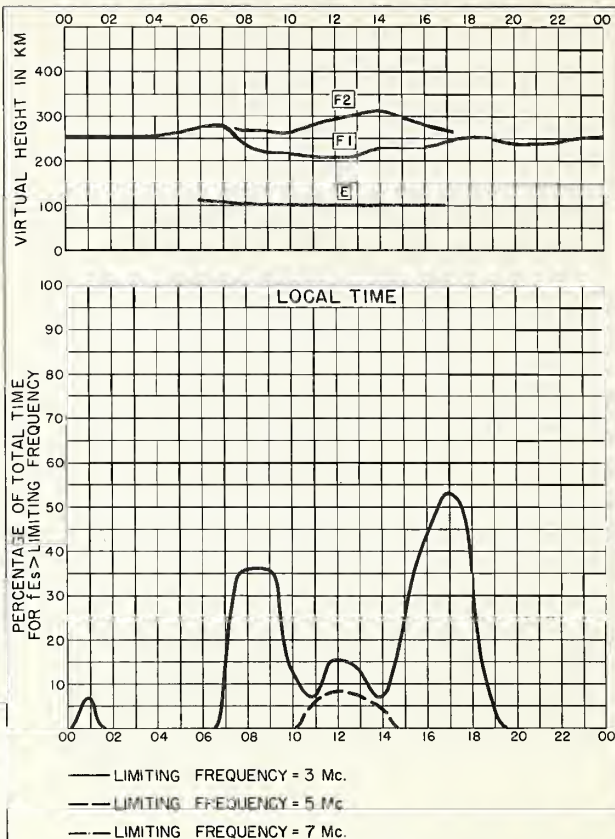


Fig. 134. CALCUTTA, INDIA

NOVEMBER 1956

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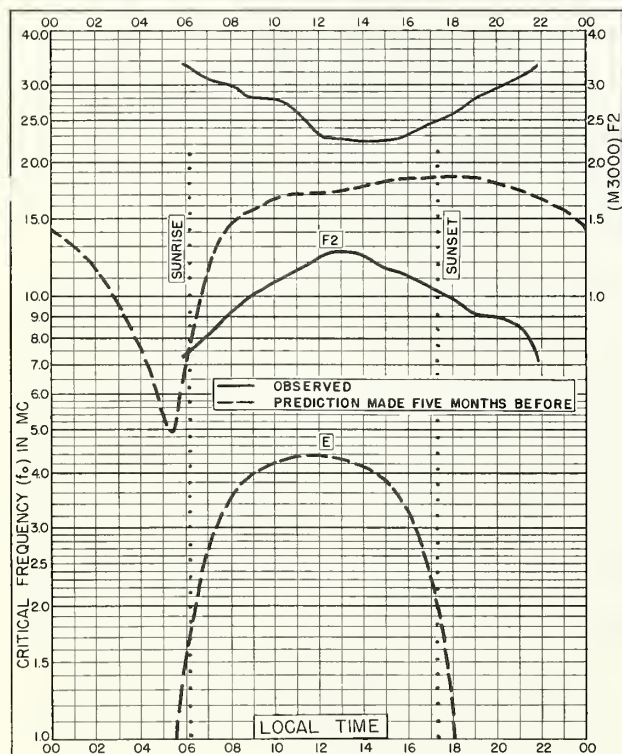


Fig. 135. BOMBAY, INDIA  
19.0°N, 73.0°E

NOVEMBER 1956

NBS 503

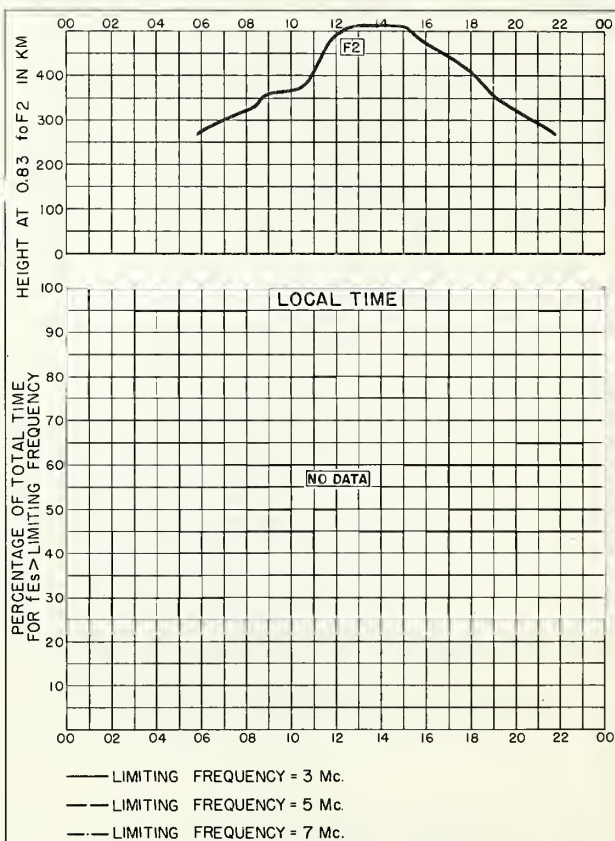


Fig. 136. BOMBAY, INDIA

NOVEMBER 1956

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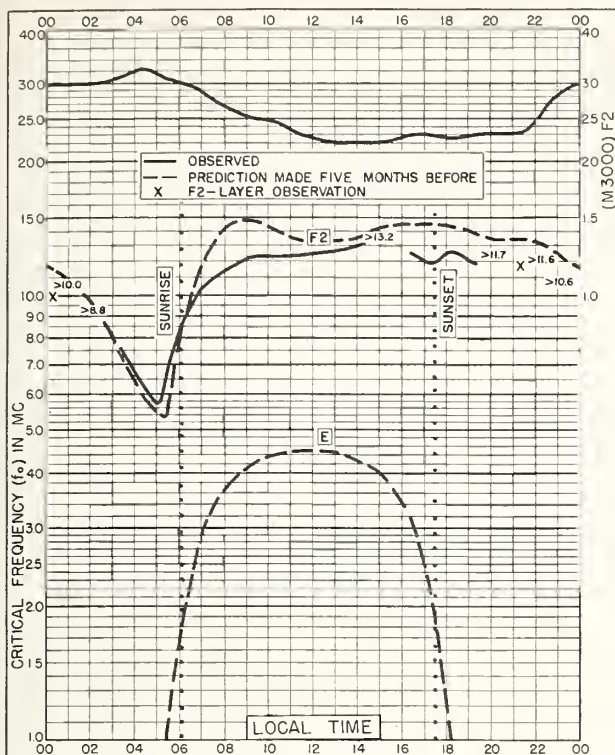


Fig. 137. MADRAS, INDIA  
13.0°N, 80.2°E  
NOVEMBER 1956

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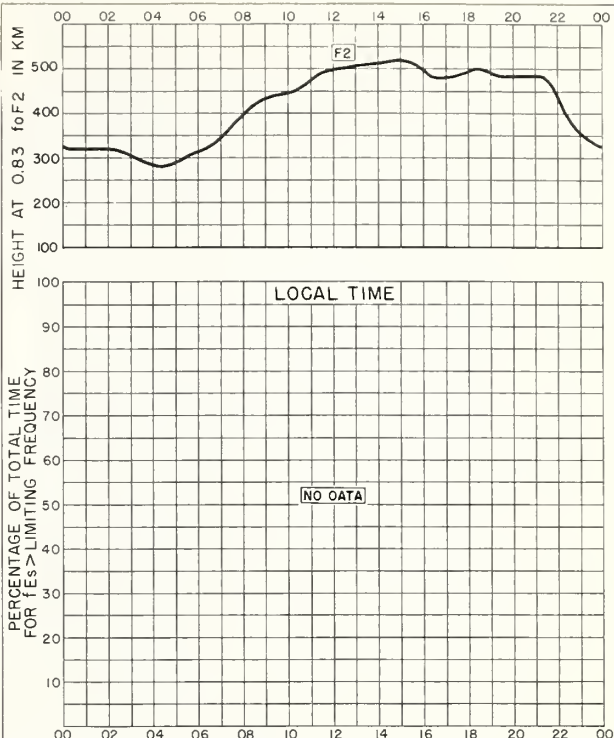


Fig. 138. MADRAS, INDIA  
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NBS 490

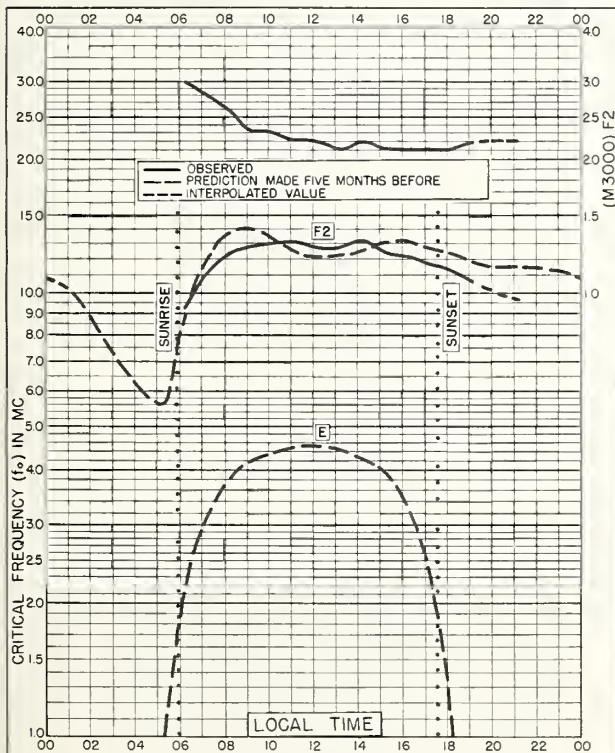


Fig. 139. TIRUCHY, INDIA  
10.8°N, 78.8°E  
NOVEMBER 1956

NBS 503

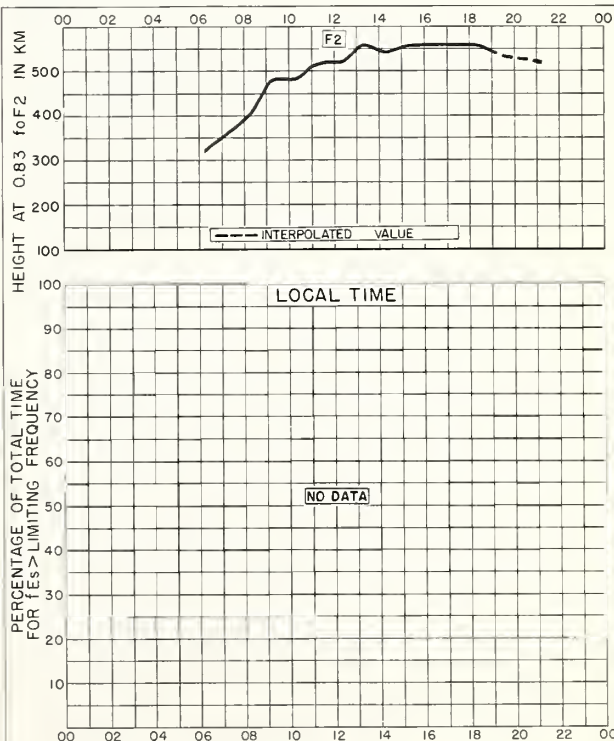


Fig. 140. TIRUCHY, INDIA  
NOVEMBER 1956

NBS 490



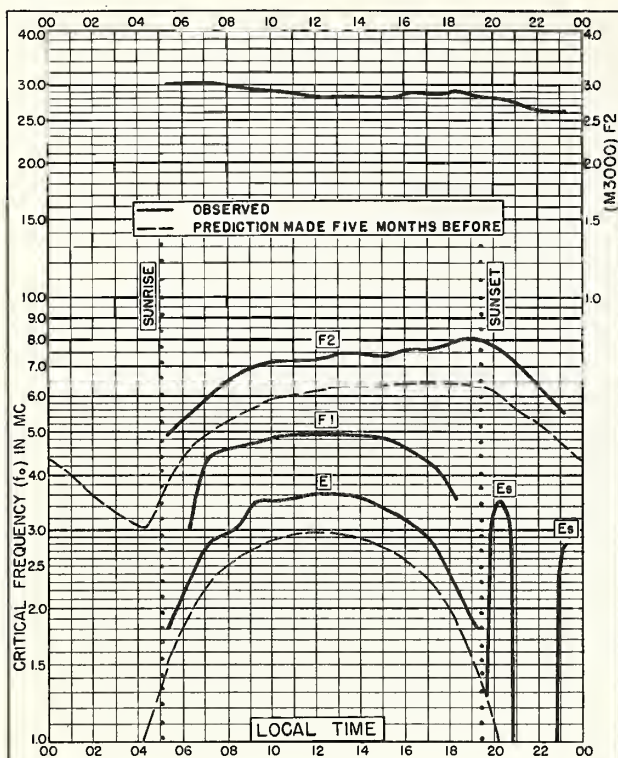


Fig. 141. CAMPBELL I.  
52.5°S, 169.2°E FEBRUARY 1956

NBS 503

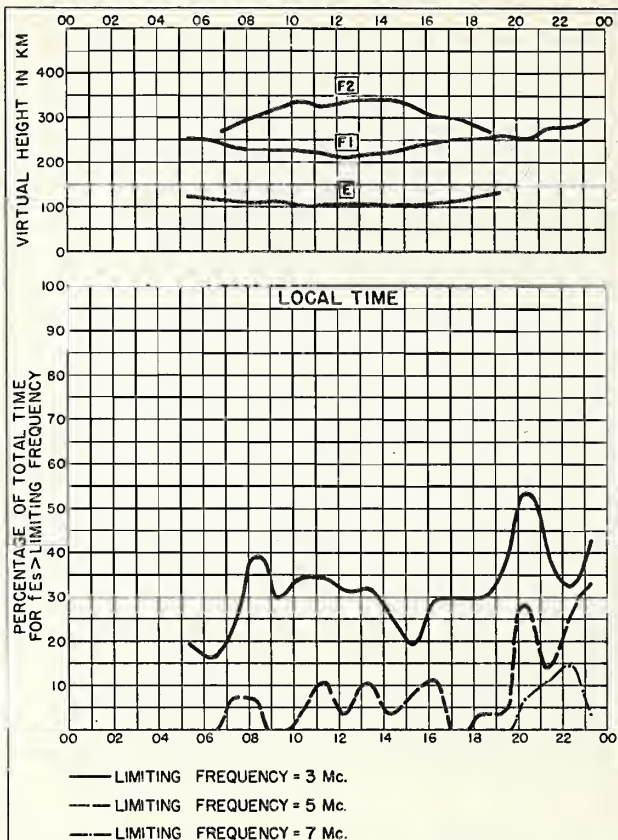


Fig. 142. CAMPBELL I. FEBRUARY 1956

NBS 440

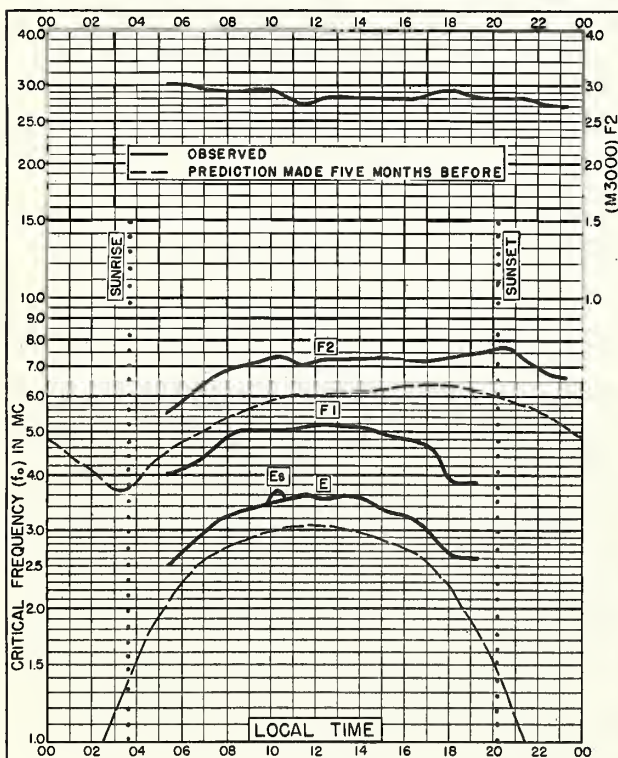


Fig. 143. CAMPBELL I.  
52.5°S, 169.2°E DECEMBER 1955

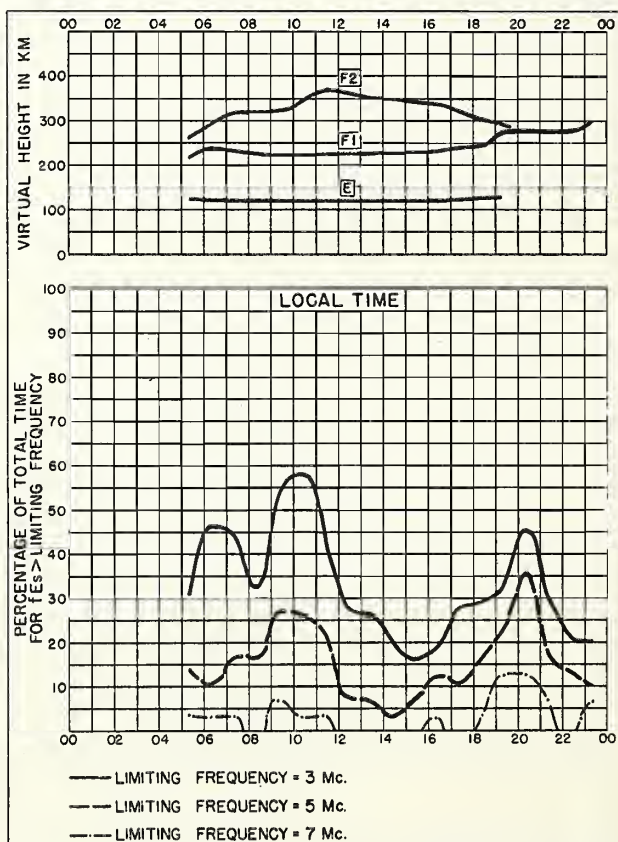


Fig. 144. CAMPBELL I. DECEMBER 1955

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## CRPL Reports

[A detailed list of CRPL publications is available from the Central Radio Propagation Laboratory upon request]

- Daily:**  
Radio disturbance forecasts, every half hour from broadcast stations WWV and WWVH of the National Bureau of Standards.  
Telephoned and telegraphed reports of ionospheric, solar, geomagnetic, and radio propagation data.
- Semiweekly:**  
CRPL—J. North Atlantic Radio Propagation Forecast (of days most likely to be disturbed during following month).  
CRPL—Jp. North Pacific Radio Propagation Forecast (of days most likely to be disturbed during following month).
- Semimonthly:**  
CRPL—Jc. Semimonthly Frequency Revision Factors For CRPL Basic Radio Propagation Prediction Reports.
- Monthly:**  
CRPL—D. Basic Radio Propagation Predictions—Three months in advance. (Dept. of the Army, TB 11-499-, monthly supplements to TM 11-499; Dept. of the Air Force, TO 31-3-28 series). On sale by Superintendent of Documents \* Members of the Armed Forces should address cognizant military office.  
CRPL—F. (Part A). Ionospheric Data.  
(Part B). Solar-Geophysical Data.  
Limited distribution. These publications are in general disseminated only to those individuals or scientific organizations which collaborate in the exchange of ionospheric, solar, geomagnetic or other radio propagation data.

### *Catalog of Data:*

A catalog of records and data on file at the U. S. IGY World Data Center A for Airglow and Ionosphere, Boulder Laboratories, National Bureau of Standards, which includes a fee schedule to cover the cost of supplying copies, is available upon request.

The publications listed above may be obtained without charge from the Central Radio Propagation Laboratory, National Bureau of Standards, Boulder Laboratories, Boulder, Colorado, unless otherwise indicated. Please note that the F series is not generally available.

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### *Circulars of the National Bureau of Standards pertaining to Radio Sky Wave Transmission:*

- NBS Circular 462. Ionospheric Radio Propagation. \$1.25.  
NBS Circular 465. Instructions for the Use of Basic Radio Propagation Predictions. 30 cents.  
NBS Circular 557. Worldwide Radio Noise Levels Expected in the Frequency Band 10 Kilocycles to 100 Megacycles. 30 cents.  
NBS Circular 582. Worldwide Occurrence of Sporadic E. \$3.25.

These Circulars are on sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Members of the Armed Forces should address the respective military office having cognizance of radio wave propagation.

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